# ARCHITECTURAL RECORD

MARCH 1950

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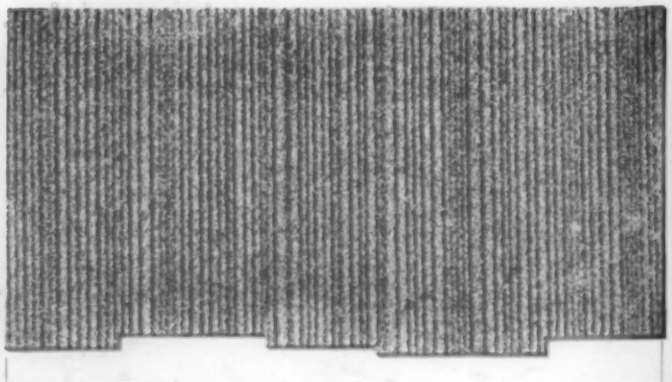

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# ARCHITECTURAL RECORD

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COVER:

The motel shown on the cover is the Tucson Biltmore, Tucson, Ariz.; Arthur T. Brown, Architect; photo by Maynard Parker. Map, courtesy Esso Standard Oil Co., copyright by General Drafting Co., Inc. Composition photograph by David Dewhurst.

THE RECORD REPORTS ..... 9
- News from Washington. By Ernest Mickel ..... 15
- News from Canada. By John Caulfield Smith ..... 16
- Construction Cost Indexes ..... 26

REQUIRED READING ..... 28

SCHOOL OF BUSINESS ADMINISTRATION ..... 87
University of Michigan, Ann Arbor. Lee Black & Kenneth G. Black, Architects. Lynn W. Fry, Architect, Supervising Architect, University of Michigan

CUSTOMER LURE FOR SHOE CHAIN ..... 94
Simco Shoe Store, Jamaica, N. Y. Gibbons & Heidtmann, Architects

A SITE FULLY EXPLOITED ..... 97
House for H. W. Eldredge, Norwich, Vt. E. H. & M. K. Hunter, Architects

ARCHITECT'S HOUSE COMBINES PRIVACY WITH A SWEEPING VIEW ..... 102
Residence of Mr. and Mrs. Louis F. Southerland, Austin, Texas. Page, Southerland and Page, Architects

MICHIGAN BELL TELEPHONE BUILDING ..... 106
Birmingham, Mich. Smith, Hinchman & Grylls, Inc., Architects and Engineers. Joseph W. Leinweber, Project Director; Minoru Yamasaki, Project Designer

BUILDING TYPES STUDY NO. 159 . . . MOTELS
Prepared by Frederic Arden Pawley, Architect, under the joint editorial direction of *Hotel Management* and ARCHITECTURAL RECORD
- INTRODUCTION ..... 110
- LOCATION, SITE, PLOT PLAN ..... 114
- GENERAL PLANNING ..... 116
- MAIN BUILDING, RENTAL OPERATIONS ..... 118
- HOUSEKEEPING, MAINTENANCE ..... 119
- RENTAL UNITS ..... 120
- MATERIALS, EQUIPMENT ..... 124
- CONSTRUCTION NOTES, WEATHER CONSIDERATIONS ..... 126
- PROMOTIONAL FEATURES ..... 127
- FOOD OPERATIONS ..... 128
- ASSOCIATIONS, BIBLIOGRAPHY ..... 130

ARCHITECTURAL ENGINEERING
Technical News and Research

POTENTIALITIES OF PLASTICS IN BUILDING ..... 132
By Albert G. H. Dietz

PREVENTING OPERATING ROOM EXPLOSIONS ..... 138
By Roy Hudenburg

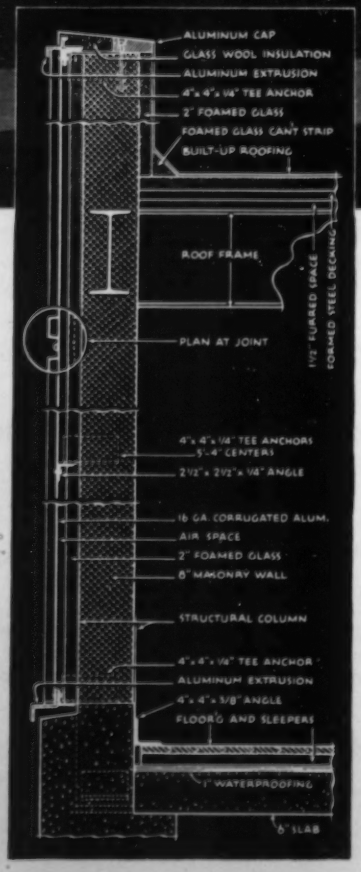
TIME-SAVER STANDARDS ..... 141
- Heating Systems for Houses. Convector Baseboard Heating Systems: Part 2. By William J. McGuinness ..... 141
- Condensation Control for Houses. Vapor Barriers, Part 4, Ceilings ..... 144

PRODUCTS . . . for Better Building ..... 145

MANUFACTURERS' LITERATURE ..... 146

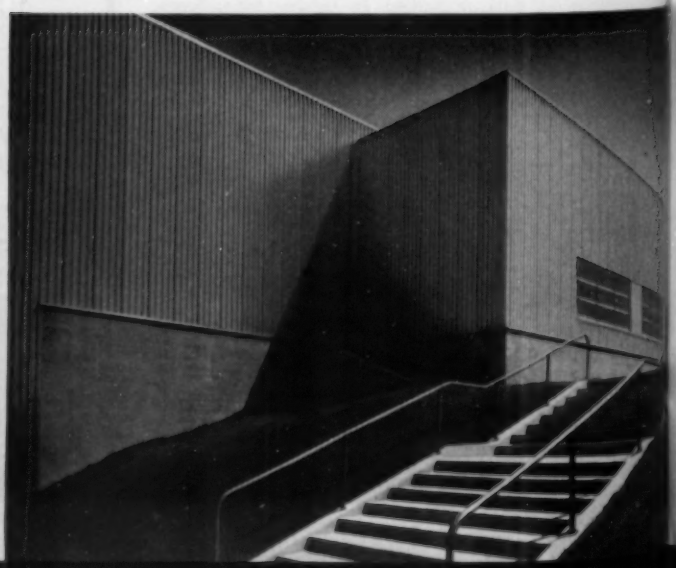
# THESE WALLS

Nylon Throwing Mill, Duplan Corporation, Winston-Salem, North Carolina. Lacy, Atherton & Davis, Architects & Engineers. Alcoa Aluminum used for exterior walls, window sash, doors, copings and ventilation louvers.




Typical wall section showing method of attaching wall

Insulated aluminum wall panels weigh approximately 7 lbs. per square foot, can be erected in fair or freezing weather. Insulation factor is equal to a foot of masonry wall.



# THE RECORD REPORTS

Zarembka Studio

*Photo at left (from left to right): Louis Justement, Kenneth Wischmeyer, Frederick Gutheim, P. C. Smith, Ernest Kump*

## MEMBERS OF 34 A.I.A. CHAPTERS MEET AT ST. LOUIS TO CONSIDER "THE ARCHITECT AND PUBLIC HOUSING"

Twenty-four states and the District of Columbia were represented at last month's St. Louis conference on "The Architect and Public Housing," sponsored by the Committee on Urban Planning and Housing of the American Institute of Architects.

Members of 34 A.I.A. chapters met at the Hotel Jefferson Feb. 2 and 3 with local and federal housing officials and representatives of six other professional societies for discussions planned to clarify the extent of the architect's responsibility for success of the new public housing program.

Speakers and discussions of the first day's session centered on the intent of the 1949 housing legislation; the history and development of public housing; the effect on communities of large-scale constructions; and the communities' responsibilities for facilities beyond the scope of the federal legislation.

Perry Coke Smith of New York, chairman of the sponsoring committee, opened the conference. A.I.A. President Ralph Walker, who introduced the speakers, stressed the importance of getting the profession as a whole to appreciate the seriousness of the job to be done in implementing the housing program. Not just planning of buildings but *community* planning must be the approach urged by architects, Mr. Walker said.

Commissioner John T. Egan of the Public Housing Administration provided the conference keynote with his plea for practical cooperation among all interested groups to make the program a reality. "Now we've got the money, let's go!" was the theme.

Louis Justement, architect, author and consultant, outlined the intent and scope of the 1949 housing legislation.

Kenneth E. Wischmeyer, A.I.A. second vice president, presided at the luncheon session on the opening day, when Frederick Gutheim, *New York Herald Tribune* writer and critic, analyzed public attitudes toward public housing. More information along this line is needed for a successful housing program, Mr. Gutheim said, and he outlined various methods of taking opinion polls.

"Public Housing from the Inside" was the initial topic of the afternoon session, with Elizabeth Coit, architect and principal project planner for the New York City Housing Authority, as the speaker. Two other local housing officials were on the afternoon's program — Richard W. E. Perrin, A.I.A., director of the Milwaukee Housing Authority, and Howard L. Holtzendorff, director of the Los Angeles Housing Authority.

Charles L. Farris, chief of the Housing and Home Finance Agency's Field Operations Branch, Division of Slum Clearance and Urban Redevelopment, wound up the afternoon's program with a talk on the relationship of slum clearance and redevelopment to public housing.

Planning techniques, the general theme of the second day's sessions, was developed in morning speeches by George

(*Continued on page 10*)

## ELIEL SAARINEN CHOSEN FOR BRITISH AWARD

Newest honor for Eliel Saarinen comes from Great Britain — the 1950 Gold Medal of the Royal Institute of British Architects.

The 77-year-old Finnish-born architect has been asked to go from his Bloomfield Hills, Mich., home to London for the presentation on April 4.

An Institute spokesman has said Mr. Saarinen was selected to receive the medal after judges had surveyed his work, beginning as early as the Finnish pavilion at the Paris World's Fair of 1900 and Helsinki's railway station.

Mr. Saarinen, who came to this country in 1923, has been an American citizen since 1945. He will be the fifth American to receive the award, instituted by Queen Victoria in 1848 and given in every succeeding year except 1901 and 1924. Mr. Saarinen's will therefore be the 100th award.

The medal was last awarded to an American in 1921, when Frank Lloyd Wright was the recipient.

## THE RECORD REPORTS

*(Continued from page 9)*

Zarembka Studio

*At the St. Louis conference (above): Ralph Walker, Elizabeth Coit, Ernest Kump, Glenn Stanton and Arthur Holden*

Bain Cummings of Binghamton, N. Y.; Fred Lewis Markham of Provo, Utah, who gave the case history of a vigorous planning project in a small town; and A. Whitney Murphy of Butler, Pa.

At the luncheon session, with Mr. Walker presiding, Planning Consultant Harland Bartholomew of the St. Louis Planning Commission described city planning techniques, and on the basis of his St. Louis Plan pointed out the best areas for immediate reclamation.

The final session of the conference was devoted to discussions led by panels of conference participants; and these evoked serious and practical talk on the problems architects face as participants in the housing program.

### *Public Relations in Action: Arkansas Pointing the Way*

Something new was added to the perennial matter of public relations for architects, when the Arkansas Chapter of the A.I.A. convened in January. The annual meeting was combined with a school building and planning conference, co-sponsored by the State Department of Education, and attendance totaled around 700.

Point was that the 700 were not all architects, talking about public relations; along with architects there were state school authorities, general contractors, materials manufacturers and dealers, the mayor, the governor, school board members, school superintendents. The program became a pooling of information and talents of all groups toward better school design and construction, so that public relations were both automatic and effective.

Some 400 school officials — superintendents, Board members, and county supervisors — attended the school conference.

Dr. Walter D. Cocking, chairman of the Board of Editors of the American School Publishing Corp., made an address which impressed his hearers with the impact of emerging school programming on school building planning. A speech by Harold D. Hauf, editor-in-chief of ARCHITECTURAL RECORD, emphasized the important part the architect plays in school planning as coordinator and professional advisor. The conference also heard a report from Kenneth Wischmeyer on the activities of the A.I.A. Committee on School Planning, and its attempts to bring about nationwide acceptance of recommended procedure in the school planning field.

Building problems and solutions were considered in a panel discussion which climaxed the conference.

Highlighting the annual dinner on the preceding evening were addresses by Kenneth Wischmeyer, A.I.A. second vice president, who discussed the work of the Institute's Board and its national committees and their programs, and Mr. Hauf, whose topic was "The Architect and the Building Team."

Besides architects and their office associates, guests at the dinner included Governor McMath, Mayor Sam Wassell of Little Rock, general contractors, materials and manufacturers' representatives, and officials of the State Department of Education and the Hospital Facilities Office of the State Board of Health.

Construction Pictures

*Pictured above: Howard Eichenbaum, J. R. Mahnker, Jr., E. Chester Nelson (standing), Yandell Johnson, Uzzell Branson and Charles Carter (seated); top, Branson and Eichenbaum, Kenneth Wischmeyer, Harold Hauf, U. of Ark. Pres. Jones, N. Y. Architect Edward D. Stone*

Rothschild Photo

*This 1000-room hotel, largest ever built in Orient, is planned for grounds of Imperial Palace in Tokyo as part of $100,000,000 building program to increase Japan's tourist and commercial facilities. Welton Becket heads the entire project, including trade and cultural centers in Tokyo and Osaka, trade centers in Yokohama and Kobe, and 13 more hotels in resort areas*

Besides an architectural exhibit arranged by members of the chapter and the department of architecture of the University of Arkansas, there were exhibits by materials dealers, school equipment dealers and members of the Arkansas chapter of the National Electrical Contractors Association.

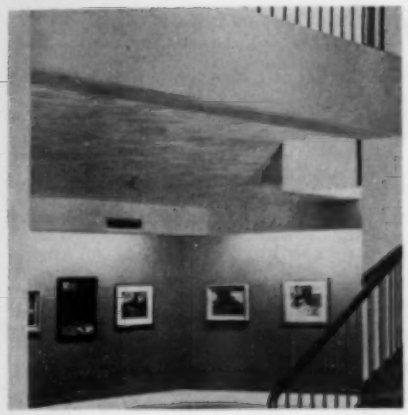
Officers for 1950 elected at the annual meeting are: Uzzell Branson, Blytheville, president; Charles Carter, Little Rock, vice president; Yandell Johnson, Little Rock, secretary; Julian Davidson, Little Rock, treasurer; J. R. Mahnker Jr., Little Rock, and E. Chester Nelson, Fort Smith, directors.

Retiring Chapter President Howard Eichenbaum summarizes the significance of the two days of meetings:

"We are confident that the impact of the meeting on public relations of the architectural profession with the construction industry and the school profession will be felt; that the situation will continue to improve.

"This is not conjecture; for as presiding officer I personally received hundreds of expressions of commendation on all the activities of the two-day meeting from members of all the groups. We hope that this is a beginning, that future meetings can be arranged to cover other fields, such as hospitals, industrial buildings, urban redevelopment.

"Our entire membership expressed pride in this achievement and we are taking this opportunity to pass it on as an example for other chapters to consider as a possible medium for better public relations."



*Akron Art Institute's new building: above, a second-floor gallery seen across foyer; left, view into gallery from main staircase*

### *Akron Art Institute Completes $275,000 Remodeling Project*

After four years in temporary quarters, the Akron Art Institute has moved to its permanent home in a building given to the Institute by the city of Akron and remodeled at a cost of $275,000. Funds for remodeling were contributed by the people of Akron.

The new quarters are planned to permit continued expansion of the program developed during the past four years under the leadership of President Walter P. Keith, Charles Val Clear, director until last summer, when he resigned to take charge of the Florida Gulf Coast Art Center in Clearwater, and the present director, George D. Culler. This development, which attracted the support of an active membership of 1500, has included launching of a progressive exhibition program and establishment of a 4-year professional school of advertising and industrial design.

Studios and shops on the top floor serve the professional school and children's classes; and a large plaster and ceramics shop on the ground floor are also used by these groups. Works of art owned by the Institute are displayed in two galleries on the second floor, where library facilities are located. One gallery is allocated for display of "art in use," with adjacent space for consultation and study. A lounge and a small auditorium are provided on the ground floor.

### *Visual Aids Program Gets Good Initial Response*

Schools of architecture and members of the Producers Council alike are enthusiastic in their reaction to the Visual Aids Program for architectural students sponsored jointly by the Council and the Association of Collegiate Schools of Architecture.

More than 40 manufacturers of building products and associations representing manufacturers are now in on the program — preparing visual aids to contribute to a visual library to aid in teaching students in 67 collegiate schools of architecture.

The series of slides is designed to explain the properties and uses of building materials and equipment and to illustrate approved methods used in modern construction More easily revised than textbooks, slides are an important aid in keeping students abreast of new building developments as they occur.

### *Juvenile Detention Center Projected in Philadelphia*

The first new structure in 15years on Philadelphia's Benjamin Franklin Parkway will provide temporary shelter for juveniles detained by the courts until final disposition of their cases.

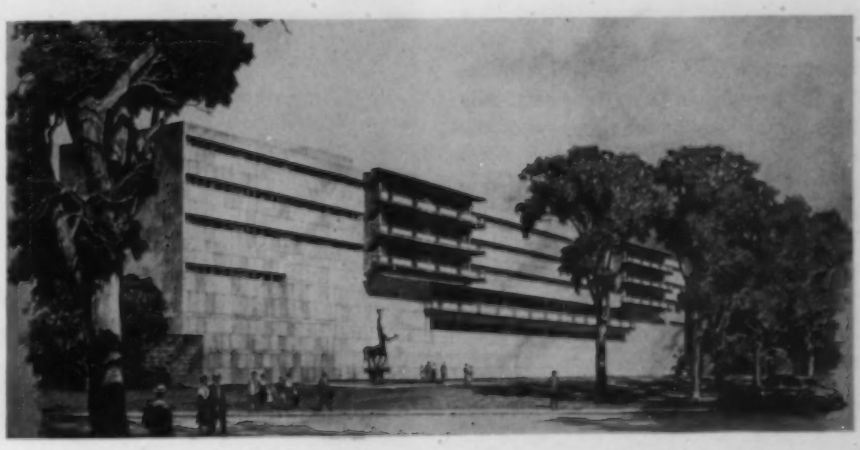
Average stay of juveniles in detention areas has been three and a half days; but in the new Center, some of the children will now be detained two weeks so that they can be more thoroughly studied. Facilities therefore include classrooms, shop and craft rooms and recreation rooms as well as kitchens, dining rooms, doctors' suites, isolation wards, examination rooms, administration rooms, locker rooms and washrooms and living quarters. Plans call for 150 rooms for the children.

Carroll, Grisdale and Van Alen are architects for the "Youth Study Center" to be erected for the County Commissioners of Philadelphia at a cost of $2,069,514. Fred N. Severud is structural engineer. Consulting engineer (mechanical and electrical) is A. E. D'Ambly.

The Center will consist of a six-story limestone-faced unit at 20th St. on the Parkway (photo of rendering below) and a three-story brick-faced unit on Pennsylvania Ave. Two bridges will connect the buildings.

Both buildings will be of reinforced concrete, single span, flat beam construction, with one-way slab and all columns and all beams the same size throughout. The Parkway building will have a foundation of piles, the Pennsylvania Ave. building spread footings.

Callowhill Street, which cuts diagonally across the Parkway between 20th and 21st streets, was closed and taken off the city plan to provide a suitable site.



## THE RECORD REPORTS

### *Contracts Awarded in January 51 Per Cent Over January '49*

F. W. Dodge Corp. figures for contracts awarded during January for building and heavy engineering works in the 37 states east of the Rockies showed an increase of 51 per cent over January of last year.

The $730,855,000 in contracts awarded represented a drop of 21 per cent from December.

Nonresidential awards of $235,294,000 in January reflected a decline of 22 per cent from December and an increase of 6 per cent over January a year ago. All major nonresidential classifications except social and recreational building were off from December's total. Compared with January of last year, educational and science building awards were up 67 per cent, and slight gains were reported for religious building; but other classifications were off, the sharpest decline being shown for commercial buildings.

Residential contract volume amounting to $343,501,000 last month showed an 18 per cent decline from December and a gain of 116 per cent over January a year ago. Both apartment house and single-family house construction showed a substantial rise over January 1949.

Heavy engineering awards amounted to $152,060,000 in January, or 27 per cent less than in December and 49 per cent more than the figure for January of last year.

*"Wright Blocks" and their creator*

### *Emblem Design Competition Is Sponsored by Engineers*

Design of an emblem which will be a "worthy graphic expression related to the work of the association" is the subject of a competition announced by the New York Association of Consulting Engineers.

The contest, which carries a first prize of $100, is open to architects, architectural draftsmen and architectural students, and has been approved as a secondary competition by the American Institute of Architects.

Drawings must be submitted to Room 1012, 101 Park Avenue, before 5 p.m. March 15, or postmarked before that time. Second prize will be $25 and there will be 10 honorable mentions of $10 each.

The association said it is inviting designs from the architectural profession "in the spirit of effective coordination and cooperation between architects and engineers in the building profession."

### *"Wright Blocks" Developed by Designer of "Lincoln Logs"*

Architect John Lloyd Wright, whose "Lincoln Logs" have been standard toy box equipment since they appeared on the market in 1918, has developed a new building set that he says offers more incentive to the imagination.

"Wright Blocks," made of unfinished wood to encourage through sight and touch an appreciation of the fine quality of natural wood, are cross-grooved forms specially machined to allow stability through an interlocking system. Towers and trestles stand firm, for the cross-grooved beams and connectors fit snugly into the larger building blocks.

Unlike Lincoln Logs, Mr. Wright says, Wright Blocks won't confine a child to predetermined designs, and thus they are really creative toys.

### *Ralph T. Walker Is Honored by New York A.I.A. Chapter Award*

President Ralph T. Walker of the American Institute of Architects received the Medal of Honor of the New York Chapter of the Institute at the chapter's 81st anniversary dinner, held at the Town Hall Club in New York City on February 21.

The medal, which is the chapter's highest award, is presented annually for distinguished architectural work and high professional standing.

Chairman George Howe of Yale's Department of Architecture, guest speaker, urged increased attention to the *average* student, adding that more good young architects graduate now than ever before.

---

### *VA Hospital at Little Rock Slated for June Occupancy*

A 500-bed general medical hospital at Little Rock, Ark., is nearing completion and will be turned over to the Veterans Administration for occupancy in June, according to present plans.

Architect-Engineers for the hospital, one of the first to be completed of a group of VA hospitals, were Erhart, Eichenbaum & Rauch and Brueggman, Swaim and Allen, of Little Rock, who have worked under the direction of the Little Rock District of the Corps of Engineers in planning and in construction supervision.

The firm of E. M. Freeman of Shreveport, La., and Werner Knoop of Little Rock were structural engineers; and Landauer & Guerrero of Dallas were mechanical engineers.

The main building, 60 ft above Roosevelt Highway on a site that dominates the metropolitan area, was designed in a Y shape to take advantage of the high point of the site and to so orient the building that a maximum number of rooms would have eastern and southern exposures. The two upper floors, where rooms and facilities for neuropsychiatric patients are located, have screened sun decks.

Exterior walls are of grayish-buff brick, with Alabama buff limestone trim. Aluminum heavy section awning-type windows were chosen to provide both maximum and controlled ventilation.

Earl Saunders Photograph

## WASHINGTON NEWS *by Ernest Mickel*

### *A.I.A. Enters Debate on Middle-Income Housing with Query on Need for Providing Additional Lending Facilities*

All the early talk in Washington on the cooperative housing bill (better known as the middle-income bill) and the bill to revamp financing aspects of the National Housing Act was directed at the ultimate goal of less costly and larger home units for more families with incomes from $2400 to $4000 per year. More of the emphasis in committee hearings on these measures could well have been directed to the specific function of the architect, particularly as the arguments applied to size and planning of living units. But the major lines of difference were drawn on more tenuous issues embracing definitions of the middle-income brackets and whether or not private industry was supplying these wage earners with the houses they should have.

The Senate's banking subcommittee, under Chairman John J. Sparkman (D-Ala.), spent a week on these matters and the full House banking committee, chairmaned by Rep. Brent Spence (D-Ky.), scheduled two weeks for hearings on H. R. 6618 (the proposed amendment on cooperative housing) and H. R. 6742 (the bill to modify terms of the old Sec. 608 rental housing insurance program under Title VI and make other phases of the National Housing Act more permanent).

The American Institute of Architects, speaking for the 8400 architects in its 94 chapters, took a mild stand on the new cooperative housing proposal, opposing in general terms the financial arrangements and objecting to the vesting of discretionary power on home design criteria in the hands of the Housing and Home Finance administrator. The A.I.A. expression took the form of a statement filed with the Senate committee via the Institute's Committee on Urban Planning and Housing.

This was in a sense a reversal of official architectural opinion on federal housing legislation. Heretofore, the organized architects have supported, in the main, the tenets of federal aid to housing as expressed in the Wagner-Ellender-Taft and later liberal housing measures.

Speaking to the Maybank amendment, or the cooperative housing bill, the Institute questioned whether ample financing facilities do not now exist; facilities which, if given reasonable opportunity, will essentially provide the needed housing for the so-called middle-income group. A.I.A. asked: "Is the measure necessary?"

The Maybank amendment dealt with an entirely new plan whereby the federal government would underwrite some interest losses in housing developments built as cooperative ventures with the financing originating with the U. S. Treasury in the form of debentures sold.

#### *The A.I.A. Stand*

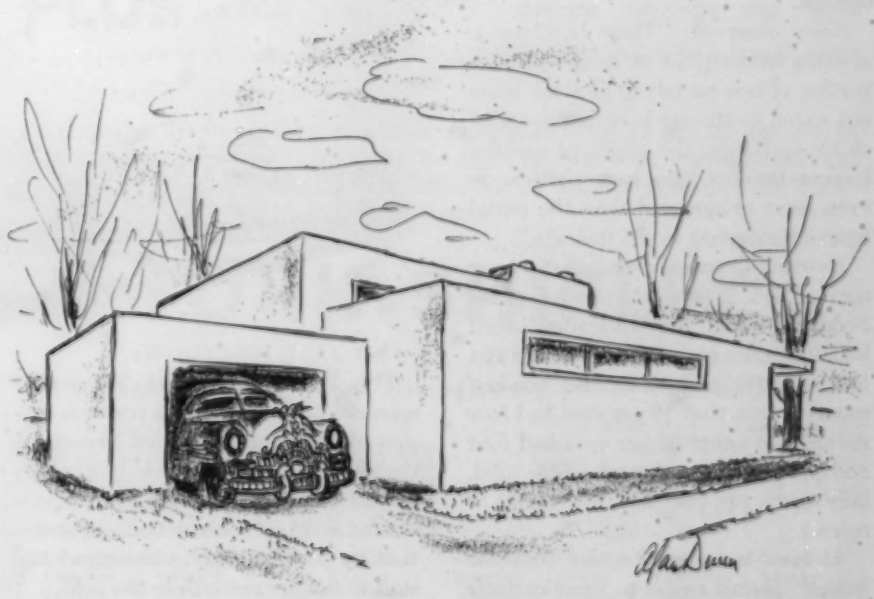
There is no conclusive argument, said the A.I.A. report, that the government needs to establish additional federally-financed lending facilities to provide middle-income housing. The great bulk of over four million new dwelling units provided since the end of the war has been in fact occupied by those families having up to $4000 annual income in smaller communities and $4900 in the larger cities.

A.I.A. then expanded its argument thus: "We feel that the present outlook is clearly for an even greater market interest in lower- and middle-income housing than in the past. The trend to the production emphasis on lower-priced housing is continuing from last year; and, with interest rates generally as low as they have been at any time since 1946 and 1947, there is no factor that does not presage a steady enlargement of the market. A constant improvement in the quality of design could likewise be obtained even under existing legislation if discretionary power in the matters of design decision were to be placed in the hands of professionals in private practice."

If, indeed, the bill was to be enacted, the architects wanted reserved to themselves the jurisdiction of design criteria for the units to be constructed. This was expressed in the statements filed with congressional committees objecting to the wording of the proposed amendments. Issue was whether or not the housing administrator was being given too much discretionary power on establishing design standards. On this point, A.I.A. said:

"We feel . . . that the determination of technical criteria and advice, and the standards of design and liveability by the administrator may not allow the architect sufficient professional discretion to enable the architect to attain designs to insure maximum economy and liveability. The language of the bill stipulates that the administrator will furnish technical advice and determine what are standards of design, construction, livability and size of dwellings for adequate family life."

(*Continued on page 16*)



— Drawn for the RECORD by Alan Dunn

## WASHINGTON

(*Continued from page 15*)

Here, the Institute held that such technical advice and problems are properly within the province of the practitioner to evaluate and to solve in order to insure adequate amenities and economies in construction and operation, as well as in future salability. It proposed that Congress give the housing administrator power to set a figure for each dwelling unit cost. This would leave to the professional architect's discretion the drawing of "a proper design" to meet this figure.

A.I.A. expressed confidence that the architects in this country could meet such a challenge.

### *HHFA Wants Larger Houses*

Throughout the testimony of housing officials before the banking committees ran references to inadequate space in new housing as well as the charge that it is over-priced. In trying to break down arguments of the private home builders that they are satisfying the housing demands of middle-income families, Housing Administrator Raymond M. Foley made the point that many of the houses and apartments coming onto the market, especially those selling or renting at charges low enough to be within the means of middle-income families, are not large enough for families with children. In the rental category too many of them have been efficiency or one-bedroom apartments, in his opinion.

Foley observed: "There has been a growing tendency for an increasing proportion of new rentals to be small units not suited to the needs of families with children. Hence, the plight of middle-income families who have children is even more pronounced than the rental figures themselves would indicate."

He cited figures showing that 49 per cent of Sec. 608 rental units for which Federal Housing Administration issued loan insurance commitments in the first half of 1949 had three and one-half rooms or less, that 19 per cent had four rooms. The other 32 per cent had four and one-half rooms or more. Of the total, only seven per cent had five rooms or more.

At least it cannot be said that the federal officials refuse to practice their own recommendations in this respect. Public Housing Administration, an HHFA constituent agency, is working with architects right now establishing new criteria for the 810,000 low-rent public housing units to be constructed in the six-year program authorized by Congress in 1949. Old standards for the 200,000 or so units constructed under the earlier public housing program no longer are adequate guides. The new units, says PHA, must be planned for more children.

Thus, on the average, apartment space and individual unit space in the new low-rent developments will be larger. PHA officials indicate that each bedroom planned in the new program must accommodate at least two persons. Under the old plan, some bedrooms were designed to accommodate only one.

On the basis of a survey of many occupants of this type of housing constructed under the earlier effort, PHA found that 90 per cent of the occupants preferred dining room space combined with the kitchen rather than with the living room. The new low-rent public housing units will be planned with this in mind.

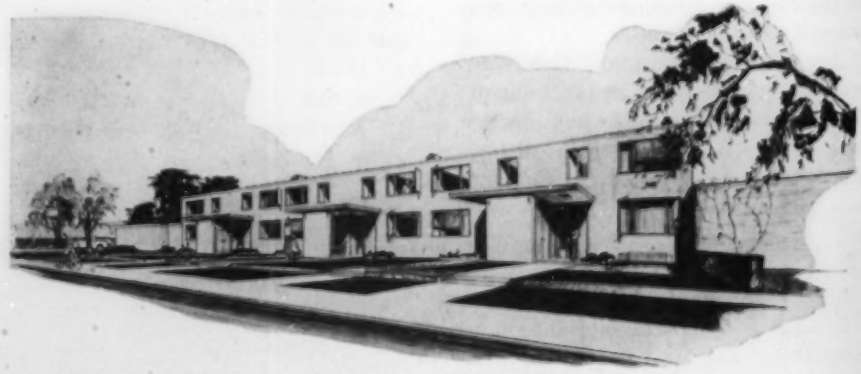
Again, criteria under the former system dictated a relative amount of space for two, three, four adults, etc. The planning now will be on a different basis, with emphasis on larger rooms and better arrangement of these rooms, more storage area and good construction for health and safety. Where the former public housing averaged 4.5 rooms per unit, including 2.5 bedrooms, the new will contain approximately 5.5 rooms per unit with 3.5 bedrooms. PHA already has issued its minimum standards governing the building of these 810,000 units. They fluctuate depending on size of unit, expected occupancy, location, etc., but agree on this: the first bedroom in each unit must have at least 125 sq ft and the second unit must have a minimum of 110.

(*Continued on page 18*)

## NEWS FROM CANADA *by John Caulfield Smith*

### NEW ROW HOUSE SCHEME DESIGNED AS MANUFACTURERS LIFE PROJECT

A row house scheme which incorporates some radical departures from the customary plan for this type of dwelling has been designed for the Manufacturers Life Insurance Co. by John B. Parkin Assocs. Firm estimates have been received by the architect to build the individual house for $8000 complete.



This is the second row house plan sponsored by the housing research section of Manufacturers Life. Success of the first, developed in collaboration with Architects Marani & Morris and demonstrated in actual construction and operation by the company, encouraged the staff to further research in the field.

Larger-than-usual room areas, storage units for baby carriages and bicycles and trash receptacles off the entrance porch, laundry chute from second floor to basement laundry tubs, and a fireplace in each living room are among the notable features of this plan.

The kitchen is located off the central hall at the front of the house; and the living room, 20 ft 10 in. by 12 ft 1 in., overlooks the back garden, opening onto another porch which has a storage cupboard for lawn mower, garden tools and children's toys.

Three bedrooms and bath are on the second floor. Closets, including linen cupboard, have floor-to-ceiling sliding doors.

(*Continued on page 176*)

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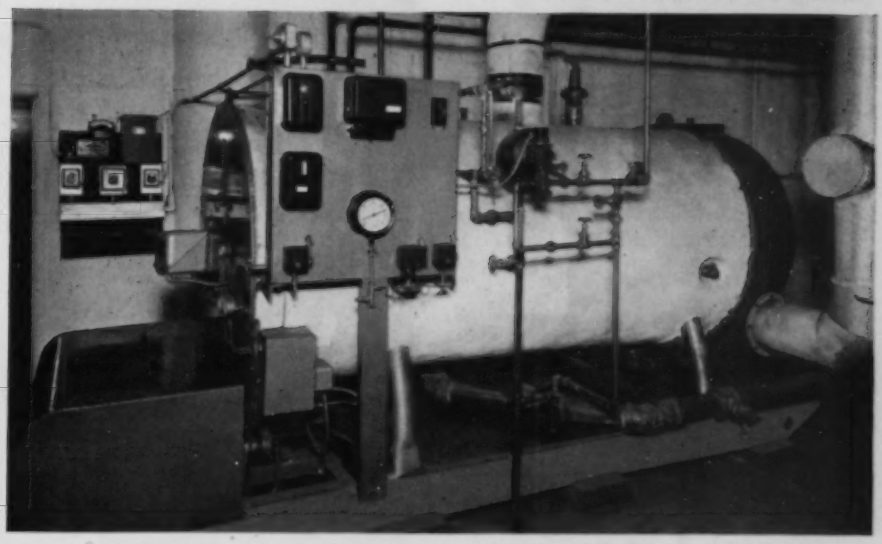

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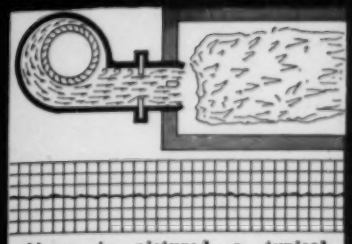
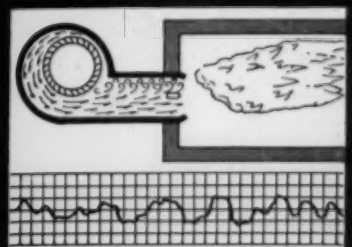
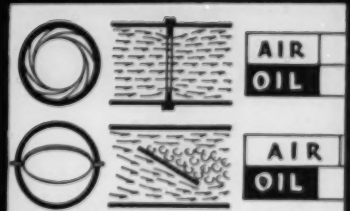
## WITH *Iris Shutter* WATCH DOG OF BOILER EFFICIENCY



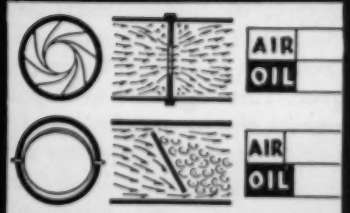
Above is pictured a typical burner WITH Iris Shutter control. Graph and flame illustration show the even flame and practically perfect control of air through your entire range.



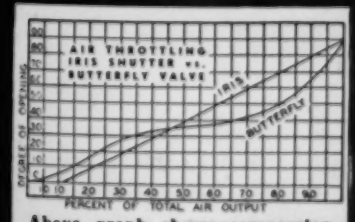
Burner without Iris Shutter shows air turbulance and uneven flame with fluxuating air volume indicating poor control.




Control of air volume through Iris Shutter versus butter-fly valve at 60% angle of opening.




Control of air volume through Iris Shutter versus butter-fly valve at 30% angle of opening. Note difference in volume control of air and oil.




Above graph shows comparsion between Iris Shutter and butterfly valves normally used in oil or gas burners. Note the perfect control with Iris Shutter.

## DESIGN FOR ATOM-BLAST RESISTANCE IS STUDIED

Tentative recommendations on construction of buildings and bridges to resist or reduce the effects of an atomic blast are contained in a mobilization planning report available from the National Security Resources Board, Washington 25, D.C.

Submitted by the Atomic Energy Commission, the study, "Damage from Atomic Explosion and Design of Protective Structures," was prepared jointly by the AEC and the Department of Defense.

### *Suggestions for Designers*

For new buildings, the report declares, "considerable study is being given to the problem of blast resistance design by the Department of Defense and educational institutions. There remains, however, a great deal to be done before satisfactory design procedures can be established."

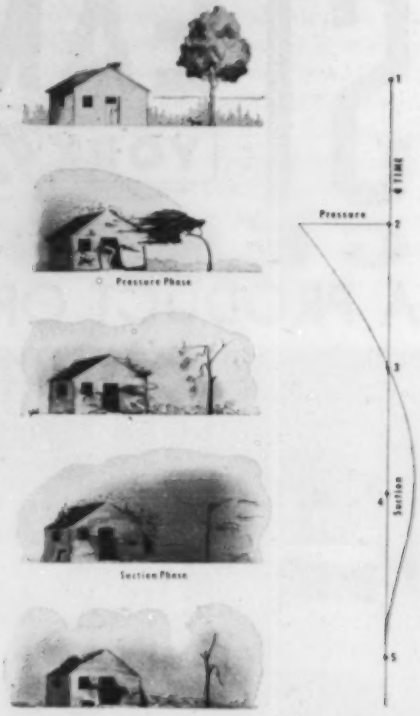
These tentative recommendations are made for the present:

"Multi-story reinforced concrete or steel-frame building: it is suggested that the designer assume a horizontal wind component of 90 lb per sq ft and a vertical component of 70 lb per sq ft for protection against structural collapse from an atomic bomb releasing energy equivalent to 20,000 tons of TNT, exploding at a horizontal distance of one-half mile and a height of approximately 2000 ft. It is also suggested that buildings and their component parts be designed employing the methods, allowable stresses and details employed in wind- or earthquake-resistant design."

A table of proportionately reduced pressures is provided for buildings to be erected at greater distances from probable target centers.

The report gives suggestions for smaller reinforced-concrete buildings, steel-mill buildings and bridges. It also has recommendations for strengthening existing structures and reducing hazards, which the experts point out is "a much more difficult problem than that of incorporating necessary measures in a design." For such buildings, principles to be followed in providing shelter areas are outlined.

The study on atomic explosion damage is the second in a series based on material gathered for a book by a board of editors working at the AEC's Los Alamos Scientific Laboratory. The first report was on "Medical Aspects of Atomic Weapons." The next such report, soon to be submitted, will be on detection and measurement of radioactive contamination.




*Effect of blast wave striking structure. First effect of blast is followed by reverse wave as pressures equalize themselves*

*Carl L. Feiss, HHFA's new chief of community planning and development, was formerly director of the School of Architecture and Planning at the University of Denver. From 1942 to 1945, he was planning director for the Denver Planning Commission; 1937 to 1942, director of Housing and Planning Div., Columbia University*

## WASHINGTON

(*Continued from page 16*)

It is expected that approximately half of the housing to go up in the new program will be of the row house type, the other half of the garden type. No free-standing units are scheduled under present programming. The agency has stated its experience indicates that the row-type home is most economical to maintain. Furthermore, row houses will permit occupants to have their own lawn and garden space, a benefit not easily provided in the garden-type apartments.

The garden apartments will have playground areas and all the housing will be adequately landscaped in an effort to make the public units neighborhood assets.

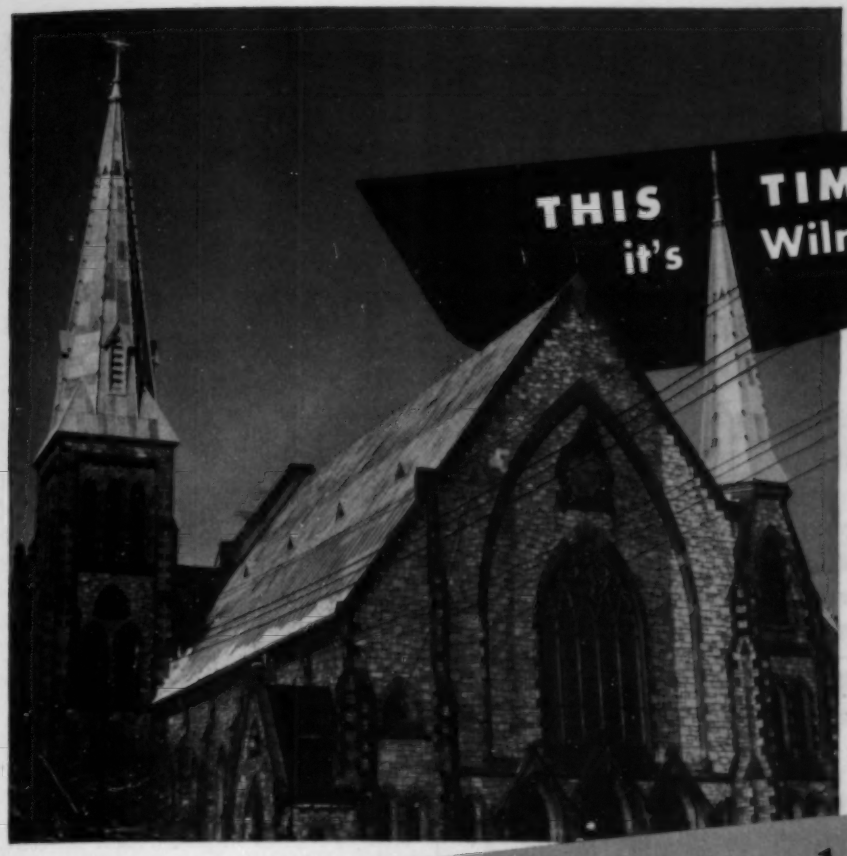
### *Interest Rate Disparity*

The private home builders, meanwhile, through their National Association of Home Builders, presented their arguments before both banking committees. These contended that middle-income family housing needs are being met with homes of adequate size. The N.A.H.B. spokesmen used Federal Housing Administration commitment figures, as did Foley, in presenting their case to Congressmen.

There was a note of urgency in all these proceedings due to the fact that the Title VI program expired March 1, 1950, under the last continuance enacted by Congress last fall. No objections were raised in the committee hearings to the Administration plan to let Sec. 608, Title VI, insurance die out on grounds it had served its emergency purpose. There appeared to be general agreement that a modification of this benefit to the building industry should be incorporated in Sec. 207 of Title II, and the program made permanent on this basis. The plan also projected making modernization and repair loan insurance, under Title I, a permanent system. Idea was to get away from the confusion generated by the repeated expiration and renewal of these programs by Congress.

At the same time, more attention in both government and industry quarters began to center on the old problem of two separate interest rates on government-backed home loans. The builders long have called for an equalization of the four per cent rate on Veterans Administration-guaranteed mortgages and

(*Continued on page 20*)



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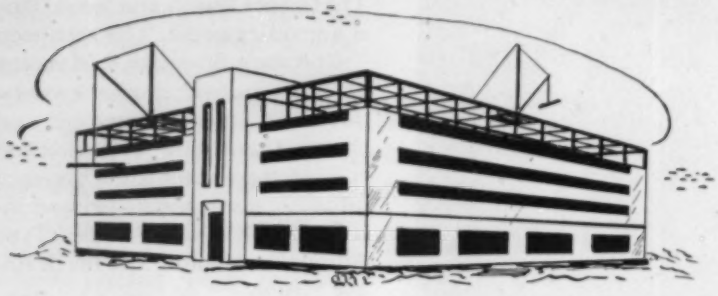

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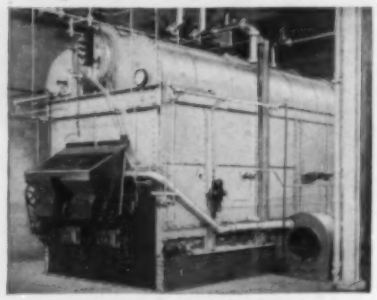

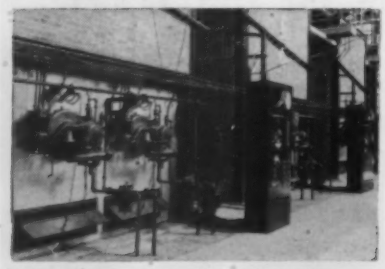

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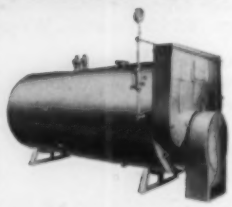

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## THE RECORD REPORTS

WASHINGTON
(*Continued from page 18*)

the four and one-half per cent rate applying to loans insured by FHA.

Sen. Sparkman said he thought the time had come to stabilize these rates at the VA 4 per cent figure. And he said he would recommend this to both agencies. It can be done without action by Congress and most industry people think such a move is long overdue.

The private home contractors hold this disparity in interest rates to be the indisputable cause of the current mortgage finance problems; but they don't want to see an equalizing move bring a new standard rate down as low as Sen. Sparkman and the veterans want it. To peg it at 4 per cent would deal a "most serious blow to veterans' housing," N.A.H.B. said.

Fully aware of the veterans' desire to make the rate as low as possible, Sen. Sparkman suggested the 4 per cent figure with the program being established on a sliding scale so the President could automatically raise the rate if the money market went up. In no event, however, does the Senator believe the figure should go above 4.25 per cent.

There is no doubt that recommendations from the veterans' groups will, in the end, dictate to a large extent what moves will be made along these lines.

### *Labor Wants Larger Houses*

The powerful backing of organized labor was thrown behind the cooperative housing plan by spokesmen for C.I.O. and A. F. of L. Their statements to Congress had undertones of complaint on size of housing now being built. Walter Reuther, chairman of the C.I.O. housing committee, referred to new housing variously as being "glorified chicken coops," "crackerboxes," and "cheeseboxes." These small homes are being purchased only because people can't find any larger shelter, he argued, pointing out to the Senate subcommittee that the model homes displayed by N.A.H.B. are only 700 sq ft in size, with one minimum house measuring 672 sq ft.

Reuther revived the C.I.O. plea that the federal government go into the mass production of homes, using former plane production plants now in mothballs. He supported the coop bill on grounds it would begin to create groups

(*Continued on page 21*)

WASHINGTON
(*Continued from page 20*)

with eventual assurance of mass markets for industrialized homes.

### *Federal Construction*

The program for site acquisition and comprehensive planning of public buildings — mostly post offices — moved ahead with General Services Administration issuing a new list of 150 projects outside the District of Columbia. On top of the 313 projects carried in the first list put out in January, this brought to 463 the number of post offices and federal buildings scheduled under Public Law 105 passed by the 81st Congress last year. This measure contemplates eventual construction of some 575 such buildings, one at least for each Congressional district in the country.

This leaves roughly 112 other projects in the program to be announced by the Public Buildings Administration, part of GSA. Among the 313 buildings in the original listing, 190 were deferred projects now up for revision of plans in the light of changes in construction cost since last they were considered. But that is all on the old list, and the balance of projects concern contemplated new construction.

There were no construction funds provided in P. L. 105, but it did launch again the planning and site acquisition part of the public buildings program virtually halted during the war.

The House committee report on P. L. 105 when it was just a bill points up the government attitude on the architectural phases: "Sec 401 authorizes the Commissioner of Public Buildings to employ by contract or otherwise, temporary architectural and other professional and technical services by negotiation and without regard to the Classification Act of 1923 or the civil service laws, rules and regulations. Procurement of professional or technical services through solicitation of competitive bids is impractical. The restrictions and salary limitations imposed by the Classification Act of 1923 and the civil service rules and regulations make it almost impossible to hire individuals to perform the necessary temporary services as government employees. Frequently it is an advantage to have an architect or engineer who is entirely familiar with

(*Continued on page 22*)

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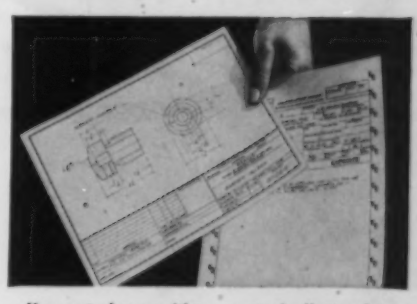

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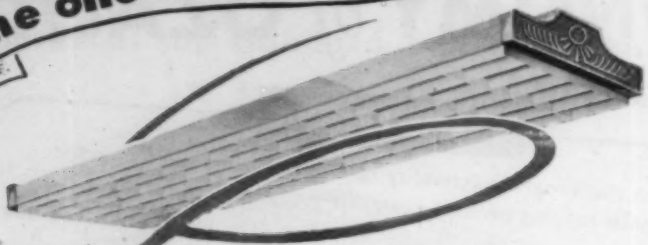

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## THE RECORD REPORTS

### WASHINGTON

(*Continued from page 21*)

the local climate, labor, materials and other conditions affecting the work This section will prevent building up a large technical organization in Washington when the work can be given to private individuals or firms in the locality where the work is to be performed."

This part of the measure was welcomed by architects and engineers alike.

In the matter of the advance planning program, also administered by GSA, Administrator Jess Larson was finally pinned down by the American Municipal Association as to hearings provided for in the new law — P. L. 352. As now revived, the advance loans-for-planning law provides the GSA head shall hold hearings in those instances where he suspects insincerity on the part of the borrowing agent. In other words, if a city borrows the interest-free funds from the Bureau of Community Facilities, does not start its non-federal public works project at the end of three years after the final installment on the federal loan has been paid, and the Administrator suspects the city was not sincere in making plans, he then shall hold public hearings on the specific case.

But in answer to A.M.A., Larson said he did not think many of these hearings would be held — that they would be exception rather than rule.

Larson points out that the hearing clause applies only to projects where bad faith is suspected and not to every project where the advance is not repaid within three years. Accordingly, he explained, municipalities need have no hesitancy in applying for and accepting advances for design of needed public works projects with any thought that they will be possibly subject to embarrassment by any action on the part of the Administrator of General Services.

The Bureau now has under consideration a proposed survey of 16,000 public bodies. Purpose would be to learn what local public works are being planned without any intention of asking for federal aid. It would list the communities where public works plans have been completed, where plans are in the design stage, and others where there are presently no plans for designing non-federal projects.

(*Continued on page 23*)

## THE RECORD REPORTS

### WASHINGTON

(*Continued from page 22*)

GSA continues to place the need for local public works at $100 billion in terms of 1948 prices.

*Shorts*

• An extensive $1,250,000 research program in clay products, their manufacture and use, was launched formally by the Structural Clay Products Institute. Its members have subscribed that amount to be spent in five years on learning how more clay products can be used to lower construction costs without sacrificing quality. R. B. Taylor, formerly with Owens-Corning Fiberglas Corp., heads the S.C.P.I. effort and says the program may discover new sizes in structural clay items. The researchers are thinking in terms of clay products that may run up to two or three feet in length.

• The Associated General Contractors said the industry might record its greatest one-year volume in history in 1950, that both dollar-wise and physically, a $29 billion to $30 billion business is possible. Two-thirds would be in new construction, about one-third in maintenance and repairs. There were some "ifs," such as adverse international developments, major strikes at home, and general pessimism. But the A.G.A. estimate, based on its own studies, was an encouraging one.

• General and subcontractors for the most part got what they were seeking from the National Labor Relations Board when General Counsel Robert Denham agreed not to prosecute certain construction cases under the Taft-Hartley labor law. This tied the hands of NLRB because it can act only on those cases Denham decides to bring to it. Employers liked this arrangement; organized construction trades in the A. F. of L. said it didn't solve anything.

• Appointment of Leonard G. Haeger as assistant director for program coordination and of A. C. Shire as head of the Housing Technology Branch of the new HHFA Division of Housing Research has been announced by Dr. Richard U. Ratcliff, director of the division.

(*Continued on page 24*)


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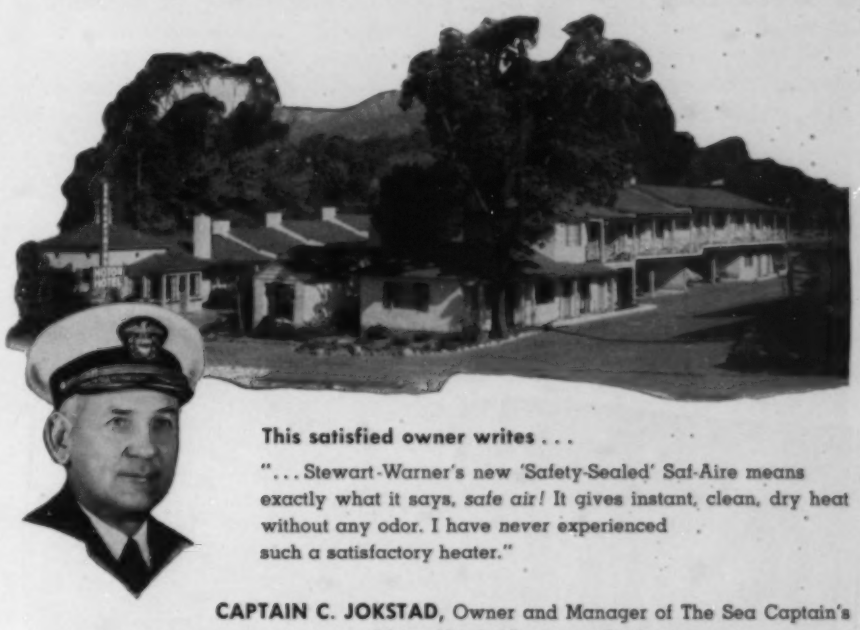



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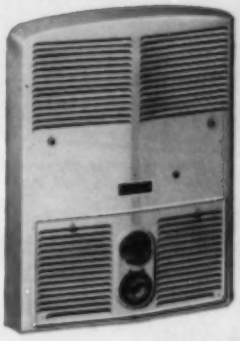

***SAF-AIRE*** wastes no floor or closet space. The all-aluminum interior panel extends only 4 inches from wall surface. Connects directly to the small Lundstrum Vent on the exterior wall. Simple, modern design suits any interior. Both 14,000 and 20,000 BTU capacity models are available in 4 attractive finishes.

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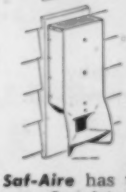
**No wonder** more and more architects, builders and owners of modern motels *specify* Stewart-Warner "Safety-Sealed" Heating!

**Especially designed for motels,** tourist courts and cabins, this "Safety-Sealed" *Saf-Aire* model is a completely independent, automatic gas heating system—*unaffected by power failure* or high-wind conditions. Easily installed in any exterior wall, it needs no chimney, ducts or electricity. Operates on natural, manufactured or LP gas.

**All combustion products** are completely sealed from contact with room air by the famous Stewart-Warner "Safety-Sealed" heating principle. Silent as sunlight in operation, Saf-Aire has *no moving parts* to maintain, wear out or replace. Heats each guest unit to its individual requirements by either manual or thermostat control.

**Write now** for complete *free* information and model specifications.



***Only Saf-Aire*** has the patented new Lundstrum Vent that draws all combustion air from outdoors, then vents all combustion products outside—*without a single moving part!*

*Approved by American Gas Association*

STEWART *Safety Sealed* WARNER

DOMESTIC HEATING

STEWART-WARNER CORPORATION

South Wind Division • 1516 Drover Street
Indianapolis 7, Indiana

 (*Continued from page 23*)

## ON THE CALENDAR

*Mar. 28–31:* 1950 National Plastics Exposition, Navy Pier, Chicago, Ill.

*Apr. 4–8:* National Production Exposition, sponsored by Chicago Technical Societies Council, Stevens Hotel, Chicago, Ill.

*Apr. 10–16:* VII Congress of Panamerican Architects, Havana, Cuba

*Apr. 19–21:* Spring meeting, American Society of Civil Engineers, Los Angeles, Calif.

*Apr. 11–May 7:* Exhibition of photographs and drawings of recently completed school buildings, The Art Alliance, 251 S. 18th St., Philadelphia.

*May 6–8:* Meeting of the Board of Directors, The American Institute of Architects, Washington, D. C.

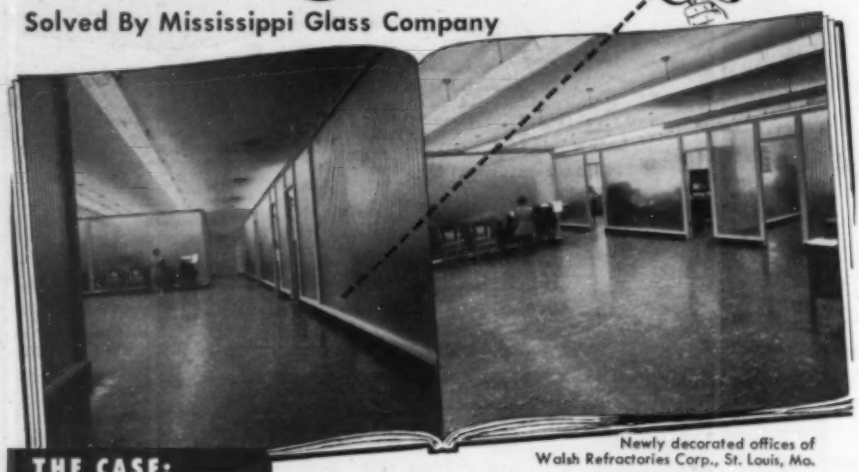
*May 8–9:* 36th Annual Meeting of the Association of Collegiate Schools of Architecture, Mayflower Hotel, Washington, D. C

*May 8–9:* Meeting of the National Council of Registration Boards, Washington, D C.

*May 9:* Meeting of the Producers' Council, Washington, D C.

*May 10–13:* 82nd annual convention, American Institute of Architects, Washington, D. C.


*The case of the*
DIVIDED OFFICE
Solved By Mississippi Glass Company



Newly decorated offices of Walsh Refractories Corp., St. Louis, Mo.

**THE CASE:** How to achieve the privacy of partitioned offices without loss of appearance or brightness derived from borrowed light.

**THE SOLUTION:** Mississippi Glass Company's STRUCTURAL CORRUGATED GLASS (Maximum sheet size, 50 inches x 144 inches)

**RESULT:** Modern design combined with luxurious simplicity. A friendly atmosphere for visitors and employees alike . . . privacy without that "closed-in" feeling. Truly, a shining example of the prominent place which glass has attained in modern office interiors.

This is just one of many cases solved by STRUCTURAL CORRUGATED GLASS. Write for catalog, "Structural Corrugated and Structuralite Glass by Mississippi." Contains suggested applications, photographs, architectural conceptions and installation details.

Structural Corrugated Glass and its companion product, Structuralite, are just two of over 30 outstanding patterns by Mississippi with varying degrees of obscurity and surface finishes to meet every industrial, commercial and residential requirement.

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## WITH THE A.I.A.

***Boston*** — From the Society of Architects comes the following comment (author anonymous) on the public housing fee schedule agreement reached by A.I.A. and P.H.A.:

A.I.A., P.H.A. have been working night and day,
And produced a recipe that is arousing;
Payroll costs and elevators,
Should prove potent generators
Of a new look in design of low-rent housing.
What with Options 1 and 2,
(They're a cinch to misconstrue,
Though presented with a stern but nebulous injunction)
With 2.5 times payroll cost, of plans technically bossed,
(We propound a question here without compunction)
Then with columns 1 to 4 (just to boggle up the score),
*Will* we get a smarter form to follow function?

***Chicago*** — The city's new building code was the topic of the February meeting, arranged by the chapter, the Western Society of Engineers and the Building Construction Employers Association of Chicago, with the cooperation of the Chicago Association of Commerce and Industry and the city Building Department. An outline of the new code was presented by John O. Merrill, Architect, of Skidmore, Owings & Merrill; Roy T. Christiansen, city Department of Buildings; and Paul Gerhardt Jr., city architect.

The revised code which was drafted by Mr. Merrill was passed by the City Council in December. Mr. Christiansen and Mr. Gerhardt served as advisers to the Mayor during code deliberations.

***East Bay, San Francisco*** — Recognizing that "the future of the architectural profession depends on ethical

(*Continued on page 152*)

# "LOADING TIME CUT IN HALF"

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**"BETTER MATERIAL HANDLING offers industry its biggest opportunity to cut production costs and to increase productivity," says Factory Management and Maintenance, which devoted forty-seven pages to this subject recently. Investigate what it can do for your clients! Let Wayne engineers help you develop the proper equipment to assure better handling of material in plants you design. There's a Wayne Hydraulic Lift for every requirement. Write for more information.**

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# CONSTRUCTION COST INDEXES

## Labor and Materials

**United States average 1926–1929 = 100**

*Presented by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assocs., Inc.*

**NEW YORK**

| Period | Residential Brick | Residential Frame | Apts., Hotels Office Bldgs. Brick and Concr. | Commercial and Factory Bldgs. Brick and Concr. | Commercial and Factory Bldgs. Brick and Steel |
|---|---|---|---|---|---|
| 1925 | 121.5 | 122.8 | 111.4 | 113.3 | 110.3 |
| 1930 | 127.0 | 126.7 | 124.1 | 128.0 | 123.6 |
| 1935 | 93.8 | 91.3 | 104.7 | 108.5 | 105.5 |
| 1939 | 123.5 | 122.4 | 130.7 | 133.4 | 130.1 |
| 1940 | 126.3 | 125.1 | 132.2 | 135.1 | 131.4 |
| 1945 | 160.5 | 161.7 | 156.3 | 158.0 | 155.4 |
| 1946 | 181.8 | 182.4 | 177.2 | 179.0 | 174.8 |
| 1947 | 219.3 | 222.0 | 207.6 | 207.5 | 203.8 |
| 1948 | 250.1 | 251.6 | 239.4 | 242.2 | 235.6 |
| Oct. 1949 | 242.7 | 239.4 | 241.0 | 244.2 | 237.6 |
| Nov. 1949 | 242.7 | 239.4 | 241.0 | 244.2 | 237.6 |
| Dec. 1949 | 242.4 | 238.9 | 241.4 | 244.5 | 237.8 |
| | % increase over 1939 | | | | |
| **Dec. 1949** | **96.3** | **95.2** | **84.7** | **83.3** | **82.8** |

**ATLANTA**

| Period | Residential Brick | Residential Frame | Apts., Hotels Office Bldgs. Brick and Concr. | Commercial and Factory Bldgs. Brick and Concr. | Commercial and Factory Bldgs. Brick and Steel |
|---|---|---|---|---|---|
| 1925 | 86.4 | 85.0 | 88.6 | 92.5 | 83.4 |
| 1930 | 82.1 | 80.9 | 84.5 | 86.1 | 83.6 |
| 1935 | 72.3 | 67.9 | 84.0 | 87.1 | 85.1 |
| 1939 | 86.3 | 83.1 | 95.1 | 97.4 | 94.7 |
| 1940 | 91.0 | 89.0 | 96.9 | 98.5 | 97.5 |
| 1945 | 132.1 | 133.9 | 123.2 | 122.8 | 123.3 |
| 1946 | 148.1 | 149.2 | 136.8 | 136.4 | 135.1 |
| 1947 | 180.4 | 184.0 | 158.1 | 157.1 | 158.0 |
| 1948 | 199.2 | 202.5 | 178.8 | 178.8 | 178.8 |
| Oct. 1949 | 184.3 | 184.7 | 177.9 | 177.6 | 174.7 |
| Nov. 1949 | 184.8 | 186.0 | 178.2 | 177.8 | 175.1 |
| Dec. 1949 | 184.5 | 185.5 | 178.6 | 178.1 | 175.3 |
| | % increase over 1939 | | | | |
| **Dec. 1949** | **113.8** | **123.2** | **87.8** | **82.9** | **85.1** |

**ST. LOUIS**

| | | | | | |
|---|---|---|---|---|---|
| 1925 | 118.6 | 118.4 | 116.3 | 118.1 | 114.4 |
| 1930 | 108.9 | 108.3 | 112.4 | 115.3 | 111.3 |
| 1935 | 95.1 | 90.1 | 104.1 | 108.3 | 105.4 |
| 1939 | 110.2 | 107.0 | 118.7 | 119.8 | 119.0 |
| 1940 | 112.6 | 110.1 | 119.3 | 120.3 | 119.4 |
| 1945 | 152.8 | 152.3 | 146.2 | 148.5 | 145.6 |
| 1946 | 167.1 | 167.4 | 159.1 | 161.1 | 158.1 |
| 1947 | 202.4 | 203.8 | 183.9 | 184.2 | 184.0 |
| 1948 | 227.9 | 231.2 | 207.7 | 210.0 | 208.1 |
| Oct. 1949 | 218.9 | 217.1 | 213.1 | 216.2 | 214.5 |
| Nov. 1949 | 220.9 | 219.2 | 214.2 | 217.9 | 215.4 |
| Dec. 1949 | 220.7 | 218.9 | 214.6 | 218.2 | 215.7 |
| | % increase over 1939 | | | | |
| **Dec. 1949** | **100.3** | **104.6** | **80.8** | **82.1** | **81.3** |

**SAN FRANCISCO**

| | | | | | |
|---|---|---|---|---|---|
| 1925 | 91.0 | 86.5 | 99.5 | 102.1 | 98.0 |
| 1930 | 90.8 | 86.8 | 100.4 | 104.9 | 100.4 |
| 1935 | 89.5 | 84.5 | 96.4 | 103.7 | 99.7 |
| 1939 | 105.6 | 99.3 | 117.4 | 121.9 | 116.5 |
| 1940 | 106.4 | 101.2 | 116.3 | 120.1 | 115.5 |
| 1945 | 146.2 | 144.3 | 144.5 | 146.8 | 147.9 |
| 1946 | 159.7 | 157.5 | 157.9 | 159.3 | 160.0 |
| 1947 | 193.1 | 191.6 | 183.7 | 186.8 | 186.9 |
| 1948 | 218.9 | 216.6 | 208.3 | 214.7 | 211.1 |
| Oct. 1949 | 212.2 | 205.8 | 214.9 | 219.8 | 215.0 |
| Nov. 1949 | 213.6 | 207.6 | 215.2 | 220.0 | 215.4 |
| Dec. 1949 | 214.0 | 208.0 | 215.7 | 220.4 | 215.8 |
| | % increase over 1939 | | | | |
| **Dec. 1949** | **102.7** | **109.5** | **83.7** | **80.8** | **85.2** |

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926–29 for that particular type — considered 100.

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

Conversely: costs in B are approximately 14 per cent lower than in A.

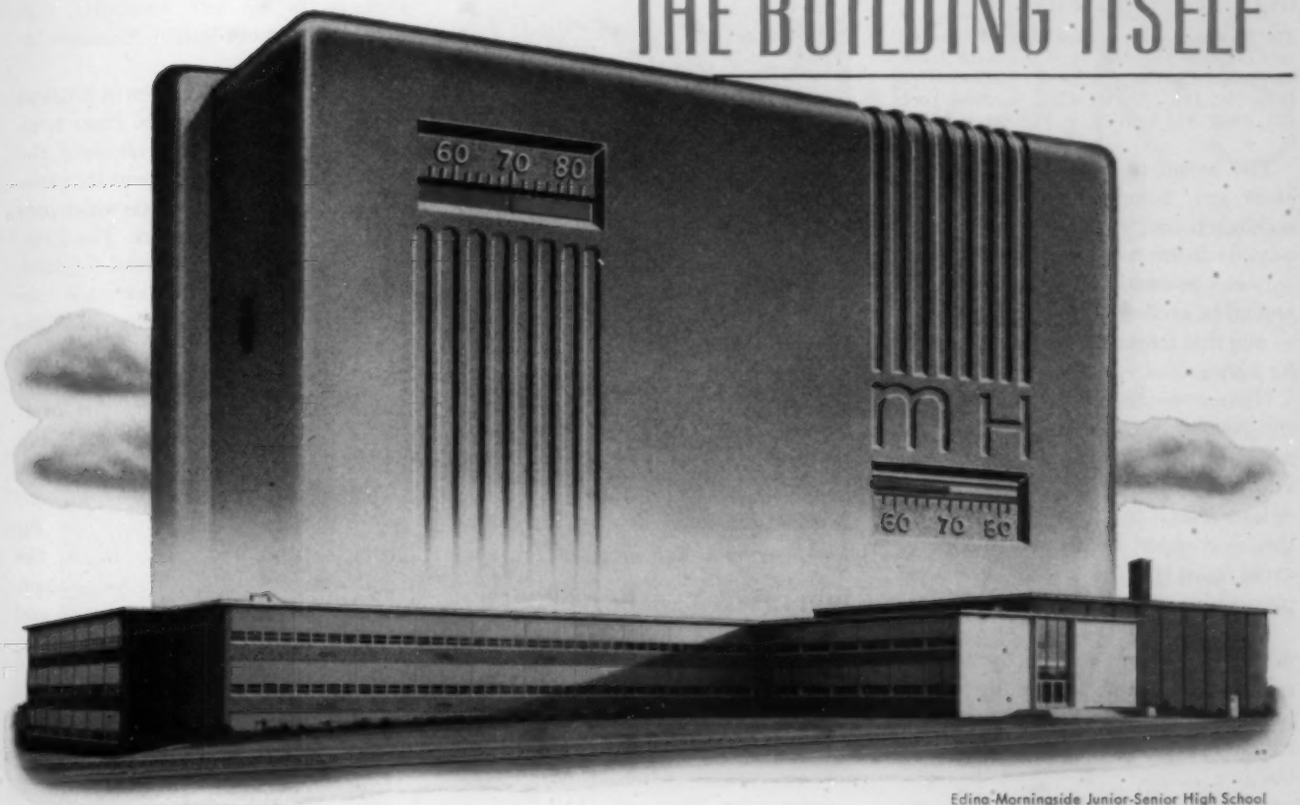
$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926–29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

These index numbers will appear whenever changes are significant.

# AS IMPORTANT AS THE BUILDING ITSELF

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# REQUIRED READING

## HELP FOR BUILDERS

*The Business of Home Building: A Manual for Contractors. Edited by B. Kenneth Johnstone and Charles E. Joern. McGraw-Hill Book Co., Inc. (330 W. 42nd St., New York 18), 1950. 5½ by 8 in. x + 290 pp. $4.00.*

The neophyte home builder a few years ago, before the postwar home building boom, was apt to fall by the wayside in his very first venture. The only way he could get the business background he needed was by trial and error — and that frequently proved too costly for his survival.

Now, however, Architect Johnstone and Realtor Joern have given him this manual which contains just the sort of vital knowledge he must acquire sooner or later if he is to stay in business. With this as a guide he should be able to avoid most of the pitfalls which so plagued his predecessor.

Here is no text-book theory. The dozen chapters are down-to-earth, fact-crammed, Dutch-uncle talks by experts in the building field. Edward G. Gavin, editor of *American Builder*, describes the building industry; H. Evert Kincaid, partner in the Chicago firm of Community Planners, explains the value of land; Seward H. Mott and Max S. Wehrly, director and assistant director respectively of Urban Land Institute, discuss land development; David D. Bohannon, president of the flourishing David D. Bohannon Organization, past president of the National Association of Home Builders, and past vice president of the National Association of Real Estate Boards, is the lecturer on job organization; and Bert V. Tornborgh, certified public accountant and tax commentator for *Barron's Financial Weekly*, is the expert called in on cost control. That's just a sampling; the other seven chapters are in equally competent hands.

Messrs. Johnstone and Joern have done the building field a very real service in the editing of this book. Between them they knew just what the home builder required in the way of business information. Between them they contrived to supply exactly that information, and to supply it in clear and authoritative fashion. Not only the contractor, but the community planner, the realtor, and the architect as well will find these twelve chapters of absorbing interest and lasting help.

*Entrance, St. Marie's Grange. Drawing by John Piper from "Buildings and Prospects"*

## BUILDINGS REFLECT PEOPLE

*Buildings and Prospects. By John Piper. The Architectural Press, Ltd. (9–13 Queen Anne's Gate, Westminster, S.W. 1, England), 1949. 7½ by 10 in. 146 pp., illus. 18s.*

A thing of beauty, said Keats, is a joy forever. And so, indirectly, says British painter John Piper, who has given us this unique volume which is in and of itself a thing of beauty.

*Buildings and Prospects* is a collection of Mr. Piper's essays on English architecture and topography as they express and influence English character. It is, as the author says, first of all a picture book: "The text is intended to elucidate the pictures, not the other way about, and the whole represents part of a painter's background." But the text elucidates extremely well, stealing quite a bit of punch from the many illustrations.

Mr. Piper looks at things not only as *things* (and an inspiration for the artist) but as explanatory notes to a way of life. His observations are specific and poignant, whether he is pointing out the merits of a simple, functional architecture such as that of a lighthouse, or whether he is pleading for a recognition of the qualities of a Victorian pub. Or whether — as in the chapter on "Pleasing Decay" — he presents arguments pro and con in the eternal problem of decay vs. restoration. Let a building fall to pieces — the picturesque approach? Restore it? Or conserve it by arresting its decay? Debatable questions, those! Perform the act with sensibility, says Mr. Piper. Ignore fashion. Consider individual merits.

Anyone who ever has been in England will cherish this book. Mr. Piper is an excellent guide in whose company the reader may meander all about the country, garnering in impressions which only such a guide could impart. The forthright nautical style of coastal England, where "beauty is hardly ever the conscious intention." Middlesbrough: "the background of Victorian compassion and cruelty, of aspiration fogged by commercialism that belong to this over-developed, half-decayed place." And Norwich, so heavily bombed in the recent war: "another proof of the curious fact that bombing intensifies the character of a town. . . . Before the war it was sick to death with commercialism, preservation, rejuvenation, and tourism; now, in spite of . . . bad damage it is healthy enough, and ready to fight its own city councillors again. Better a war-veteran than a museum-piece."

Yes, Mr. Piper's text elucidates almost too well. The interest of the printed word lessens the impact of the author's many fine photographs and his exquisite paintings and drawings. Text and illustration combine to make this a memorable small volume.

## HOW TO DRAW

*Pencil Drawing Step by Step. By Arthur L. Guptill. Reinhold Publishing Corp. (330 W. 42nd St., New York 18, N. Y.), 1949. 9 by 12 in. 220 pp., illus. $7.50.*

The several books by Arthur L. Guptill on drawing and rendering in pencil, pen-and-ink, and color are familiar to most American architectural men, particularly those whose period of training and apprenticeship occurred in the Twenties and Thirties when such volumes were at the height of their popularity. This latest addition to the series, while intended to replace the now obsolete SKETCHING AND RENDERING IN PENCIL, originally published in 1922, is apparently designed to appeal less to the architectural draftsman of today than to the lay student of freehand drawing who may be either taking "art" courses in school or studying by himself at home.

(*Continued on page 30*)

# Rolling Steel DOORS

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Modern, permanent industrial or commercial buildings today merit the permanence of good, all metal rolling steel doors. No other type of door offers as many desirable features as the vertically acting, quick opening, quick closing, power operated rolling steel door. Open or closed, it occupies no usable space inside or outside the opening . . . its roll-up action requires a minimum of space, provides 100% clear opening, and eliminates door damage . . . its all metal construction assures permanence and a lifetime of trouble-free service — and, most important, it provides maximum protection against intrusion and fire. If you select Mahon Rolling Steel Doors, regardless of the type of opening, you can rest assured that you will get the latest developments in doors of this type . . . more compact and more practical operating devices, curtain slats of Aluminum, Stainless Steel, or Galvanized Steel which is scientifically cleaned, rust proofed, and coated with high temperature oven-baked rust inhibiting enamel prior to roll-forming. These, and many other desirable features that characterize Mahon Rolling Steel Doors, are worthy of your consideration. See Sweet's Files for complete information, specifications and details, or write for Catalog G-49.

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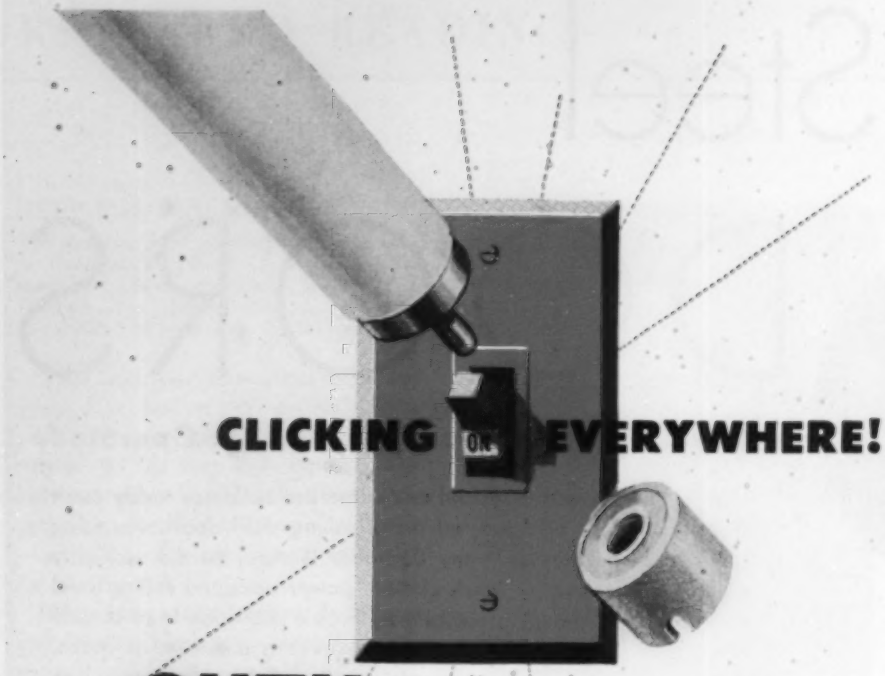
# MAHON

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## REQUIRED READING

(*Continued from page 28*)

The contemporary professional will find most of the illustrative material corny.

Nevertheless, there is some meat to be found in Mr. Guptill's observations on the technical applications of a large variety of pencils and pencil-like media available today. The average student-draftsman can learn from his pages many useful tricks of the trade which can be employed in more modern types of graphic expression. The pencil is still probably the architect's most useful tool and it's worth something to know about all of its technical potentialities. As a teacher of long and varied experience, Guptill knows how to acquaint you with most of them, and does it with commendable clarity and brevity.

### ESSAYS ON ARCHITECTURE

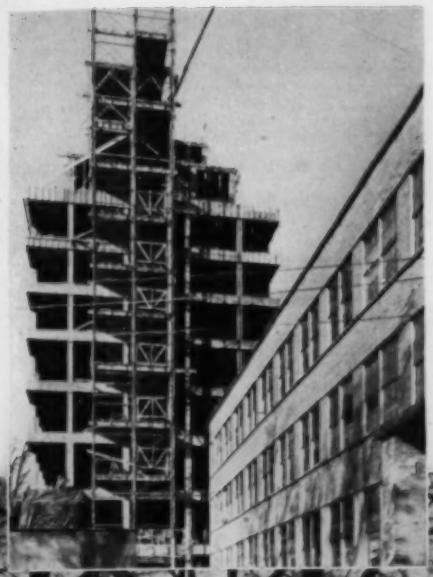
*Heavenly Mansions and Other Essays on Architecture. By John Summerson. Charles Scribner's Sons (597 Fifth Ave., New York, N. Y.), 1948. 5½ by 8½ in., illus. x + 253 pp. $5.00.*

Architects who remember John Summerson's GEORGIAN LONDON (ARCHITECTURAL RECORD, Feb., 1947) will welcome this collection of essays by the same author. It is not often that a reader can find assembled in one volume such an all-embracive group of essays on the whole field of architecture, ranging from study through history and criticism.

Here is a new interpretation of the Gothic. Here also is a discussion of an 18th century town planning venture — that of John Wood for the city of Bath, England. And here is still another analysis of the enduring problem of restoration or decay. Mr. Summerson is essentially in accord with Mr. Piper on the latter subject (see above). "In its worst form," he says, "the preservation may be a resentful fumbling, a refusal to understand the living shape of things, or to give things shape. In its best form, it is a mark of civilization such as few nations have aspired to show."

One of the most interesting of Mr. Summerson's essays undoubtedly is that on "Architecture, Painting and Le Corbusier." The title alone is intriguing; what the author does with it is more so. Far be it from the mind of this reviewer to quote therefrom and spoil a reader's pleasure!

A number of line drawings and 32 pages of plates elucidate the text. On this point Messrs. Summerson and Pipe are on opposite sides of the fence.



# SCHOOL OF BUSINESS ADMINISTRATION

University of Michigan — Ann Arbor

*Lee Black & Kenneth C. Black, Architects*

*Lynn W. Fry, Architect,*
*Supervising Architect, Univ. of Michigan*

*Russell A. Stevenson, Dean,*
*School of Business Administration*

*Walter M. Roth, Plant Superintendent*

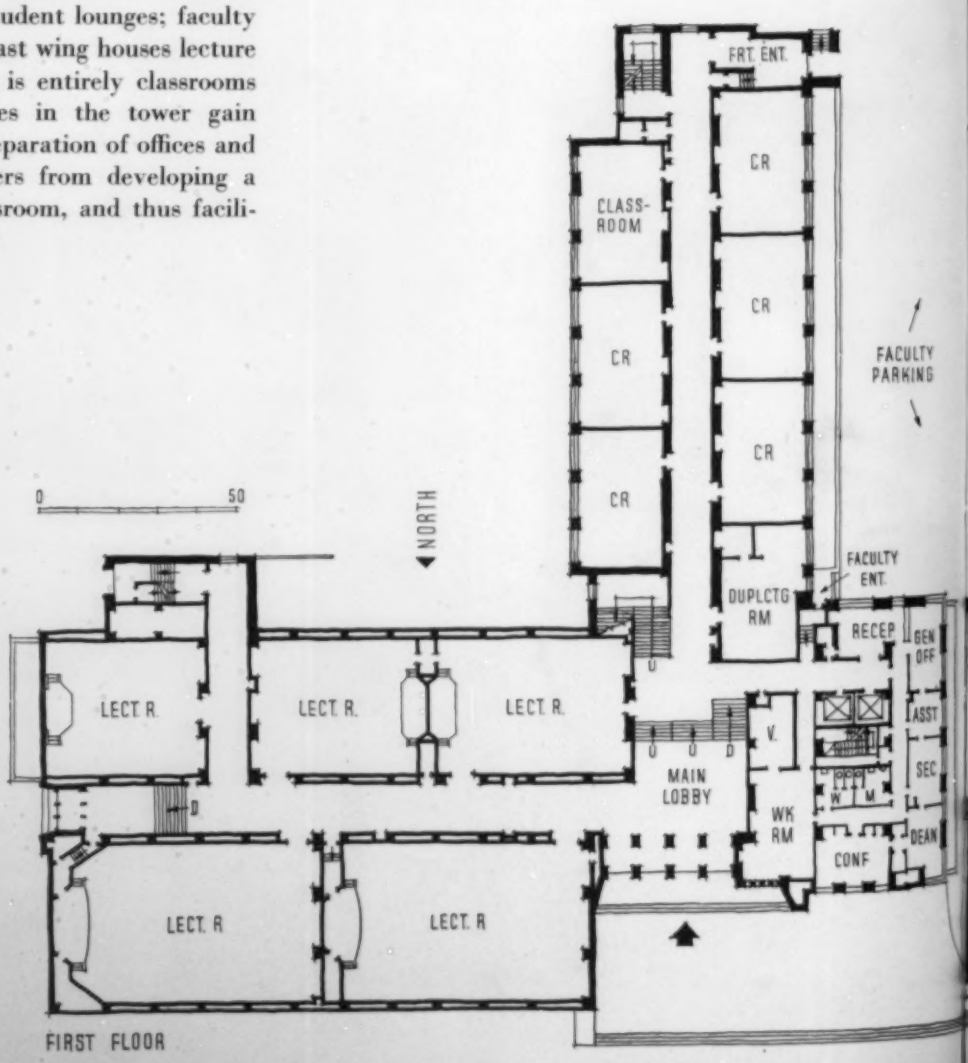
IN the new building for Michigan's School of Business Administration, harmony with the diversity of architectural styles on the University's campus was sought in such matters as facilitating student traffic from other campus areas to ultimate destinations within the new structure. Early in the design process it was decided that the School should have, in part at least, something of the flavor of a commercial office building, to accustom students to the environment in which they would eventually apply the training received here.

Next were considered, in sequence, the relationship of the various functions of the School to each other, circulation within the building, detailed planning of the several departments, and interior and exterior treatment, including selection of materials, finishes, colors, and study of the problems of acoustics, lighting, heating, ventilating, etc. The refinements of design were by no means neglected — note window detail at right — but there is little ornament for ornament's sake. If a certain flatness of aspect results despite the projecting window surrounds, that is as characteristic of the average contemporary office building as the Corinthian capital is of lush Rome. (The facing photograph was taken from the garden of the College of Architecture.)

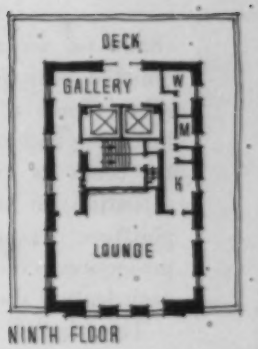
*Lower tower stories have same floor-to-ceiling height as 3-story classroom wing; fourth and fifth stories, an intermediate height, remainder, normal office height. Aluminum double-hung windows are four lights high throughout tower's height but are gradually reduced from 8 ft high on first floor to 5 ft 4 in. on the eighth, to accentuate natural foreshortening when viewed from the ground*

*Entrance location was determined by campus traffic. Through the principal entrance near the northwest corner (interior above; exterior on page 87) passes 85 per cent of student traffic from the campus. East entrance (lower left) accommodates above 10 per cent, small southwest entrance (upper left) takes remainder*

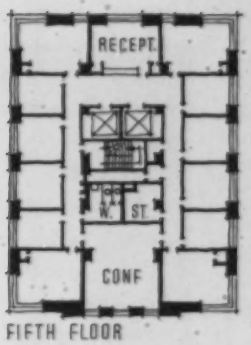
Michigan's School of Business Administration required lecture rooms to seat 750; 100,000-volume library for 400; 27 classrooms (including laboratories); private offices for 80 faculty members; administrative offices; special facilities for two Bureaus (Industrial Relations and Business Research); two student lounges; faculty lounge; usual accessory areas. East wing houses lecture rooms and library. South wing is entirely classrooms and laboratories. Faculty offices in the tower gain privacy, business atmosphere; separation of offices and classes prevents faculty members from developing a proprietary interest in any classroom, and thus facilitates multiple use of classrooms.




*Basement (not shown): 9 class or seminar rooms, office equipment exhibition room, student lounge with kitchenette, record vault, extensive mechanical and electrical equipment space. Note direct, non-crossing circulation: from main entrance students go up or down to classes or library, left to lectures, right to offices by elevator. Faculty enters directly from parking space to office elevators*

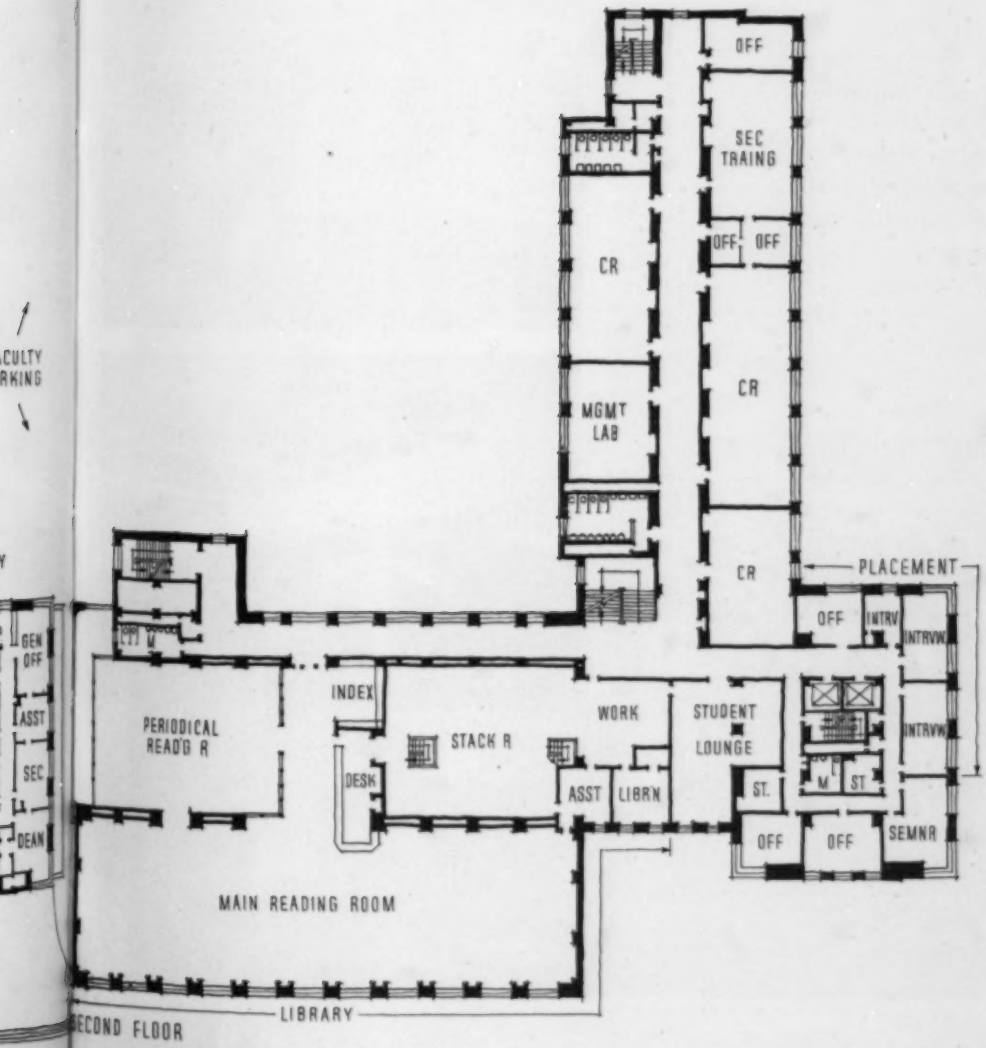


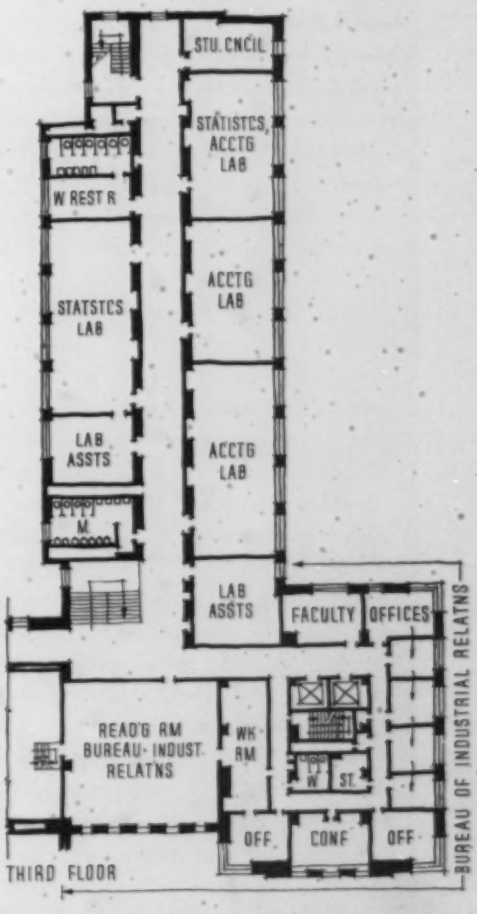
NINTH FLOOR



FIFTH FLOOR

***Photos:*** *left and right, main library reading room; center, periodical room. Library is primarily for majors in business administration.* ***Plans:*** *fourth floor (not shown) has typical offices, for Bureau of Business Research. Sixth, seventh, eighth floors, like fifth, are faculty offices. Ninth floor: alumni and faculty lounge. Tenth: elevator machinery, water tank, fan room*




*Bureau of Industrial Relations has separate reading room near library stacks; there is room for 3-tier stacks in the 2-story stack room*

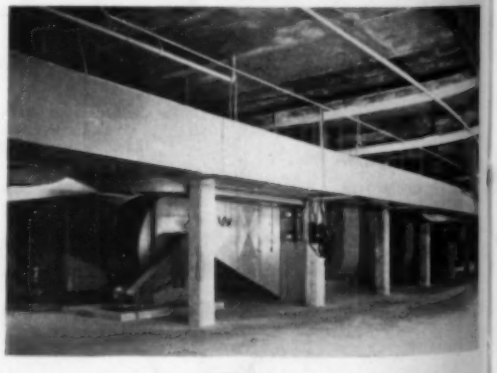
The School of Business Administration's three largest lecture rooms have sloping floors, with benches and chairs on terraces and ramped aisles. Windows are omitted entirely in order to increase the acoustical effectiveness of the room, to avoid the expense of installing and maintaining automatic curtains to darken the room for visual education programs, and to focus attention on the speaker's platform. Each speaker's platform is equipped with a sliding blackboard and a projection screen. Small storage areas are provided in each lecture room for equipment and lecture material.

The library (see preceding page) is arranged with the card catalogue reference section for students adjacent to its main entrance, with the charging desk immediately next; from here there is access to stack space, which will ultimately be three tiers high and accommodate 100,000 volumes; the first two tiers were installed as a part of the original building contract. Of the two principal reading rooms, the large general reading room with windows to the north seats approximately 295 people; a smaller periodical reading room seating 85 faces east. A small doorway at one end of the main reading room leads to the librarian's office.

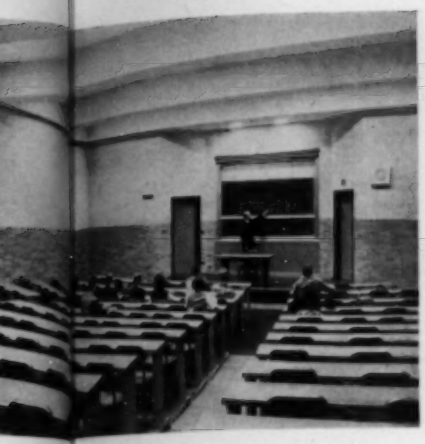
The standard classroom in this building, designed for 50 students, measures approximately 22 by 36 ft. The classroom wing is designed in 12-ft bays, each of which operates as a unit so far as heating, ventilating and lighting are concerned. It is, therefore, possible to increase or decrease the standard classroom unit in intervals of 12 ft at any time. Special laboratories are housed in the classroom wing, and have been provided with underfloor ducts for electric services so that automatic business machines can be used anywhere.

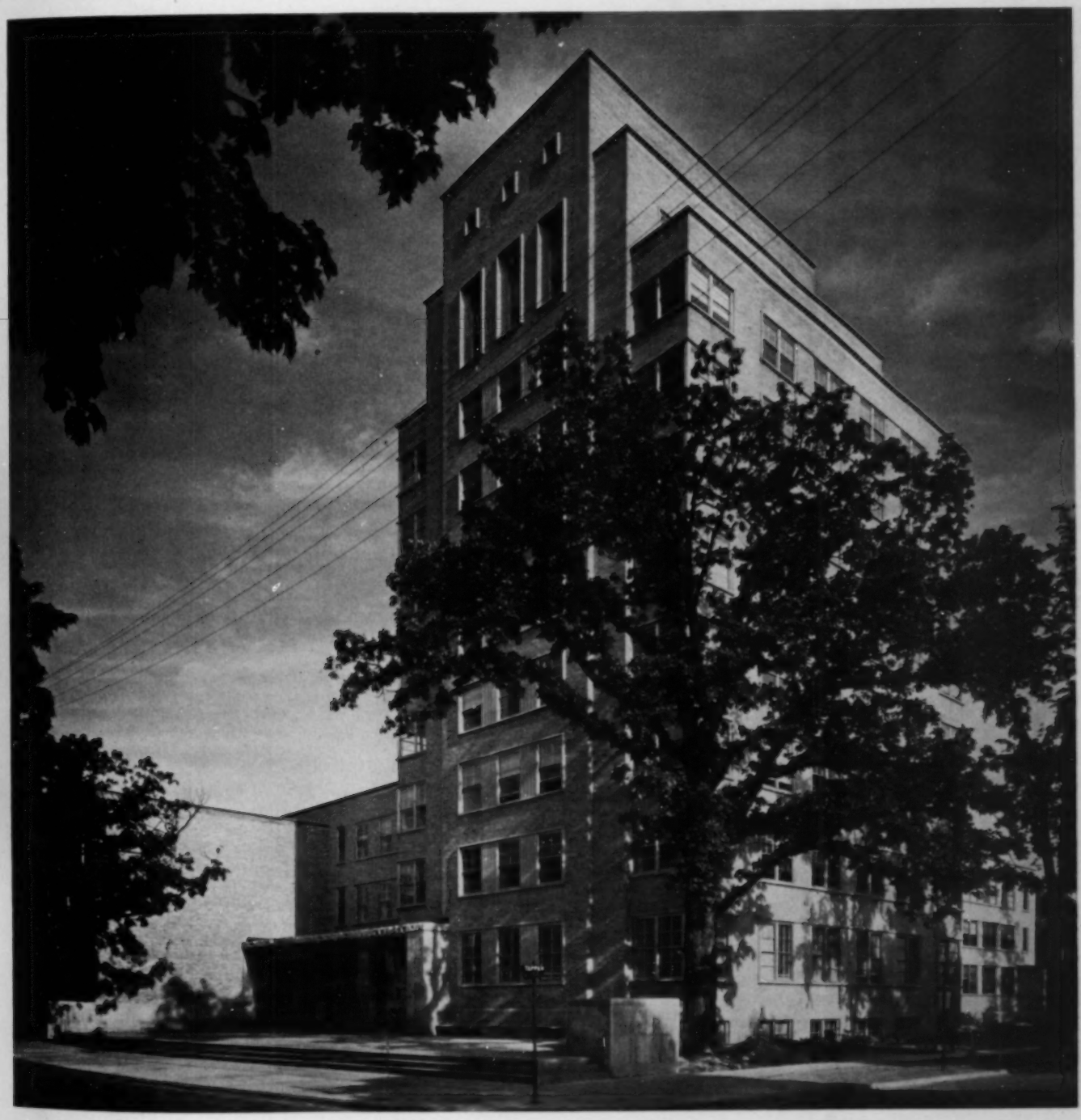
The structural frame of the building is reinforced concrete up to fourth floor level; the faculty office tower above the fourth floor has structural steel framing. The entire building is faced with warm buff brick; trim is Indiana limestone. Artificial lighting throughout is provided by recessed fluorescent fixtures with egg-crate louvers set flush with the ceilings. Ceilings themselves are of acoustic material cemented on mineral lath. All finished masonry walls throughout the interior are painted cinder block, except that in corridors, lecture rooms and library reading room wainscots, a brick similar to the warm buff exterior face brick has been used. Sheet rubber flooring was used in the library reading rooms, cork flooring on the ramps of the lecture rooms, and asphalt tile in all other areas. Most windows are double-hung aluminum. The same metal is used for all other exposed metal work throughout the building. Interior doors are of wood with metal frame. Toilet stalls are of metal.

Heating is by steam from the University's central plant, through recessed convectors underneath the windows, controlled by thermostats in each room. Some supplemental heat is provided through a fan and blower system. The fans are located in the basement and supply ducts are contained in corridor ceilings. Separate fans are provided for lecture rooms, library, and classroom sections.



*Classrooms and laboratories (above left) have wall recesses for coats and hats; there are no lockers in corridors. Lecture rooms (above, center and right) are windowless to improve acoustics and visual education and to concentrate attention on podium. Below, conference room in tower; bottom, mechanical equipment*



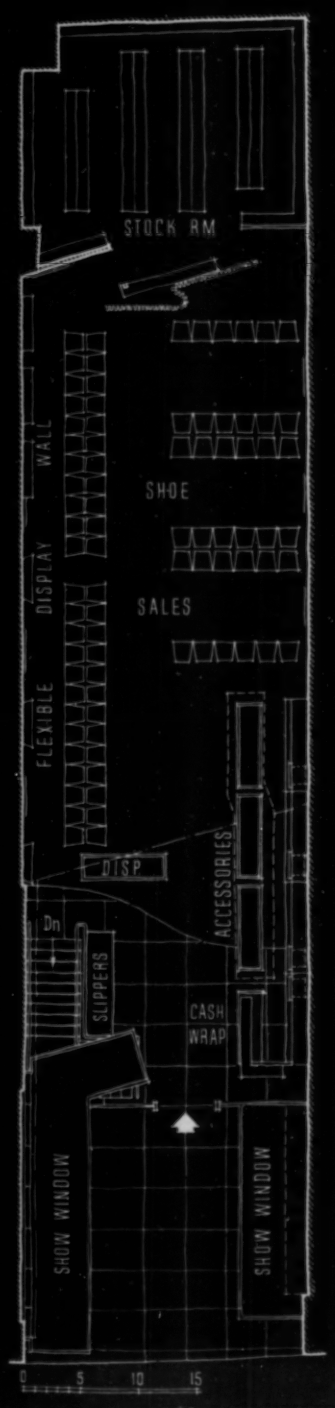


Simcos
SHOES
SIMCO

# CUSTOMER LURE FOR SHOE CHAIN

Jamaica, New York

*Gibbons & Heidtmann, Architects*




PRIME requisite for this new Simco Shoe store was customer appeal and plenty of it: there are four competitive women's chain shoe stores close by, on the same side of the street.

The owners' requirement of 200 to 250 sq ft of window display area necessitated an arcade entrance. For front interest, the two windows were treated differently in height, support and lighting. The larger of them was cantilevered off the side wall, carried through the glass front and angled over the stairs to the selling basement. The large sign panel is carried on a structural

Lionel Freedman: Pictor

free-standing awning box; its dark brown vertical porcelain members are separated by white rubber stripping; frame is white porcelain, letters are white.

Flexibility keynotes display provision in the selling area. The display wall shown here has a finish of cemented-on fabric in a 3-ft square pattern. Over the pattern joints wall bracket standards are applied horizontally and vertically, permitting a series of display boxes and mirrors to be located anywhere on the wall. Above the accessory bar, shadow boxes in a continuous wall-hung back bar fixture, complete with lighting, may be grouped in any position. Flexible spotlighting for the displays is provided above the louvered ceiling.

Lionel Freedman: Pictor

*Display wall is red, carpeting gray; seats are alternately white and gray; fixtures are birch, walnut and red plastic*

# A SITE FULLY EXPLOITED

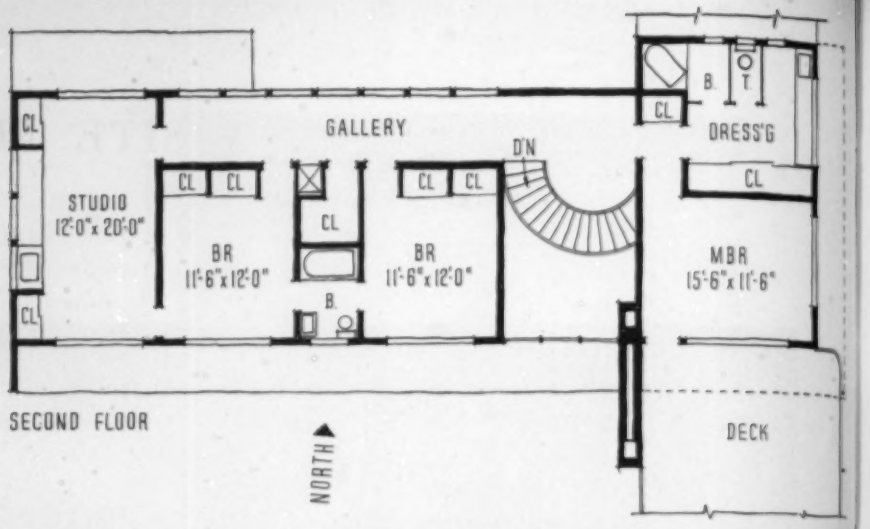
**House for H. W. Eldredge, Norwich, Vt.**

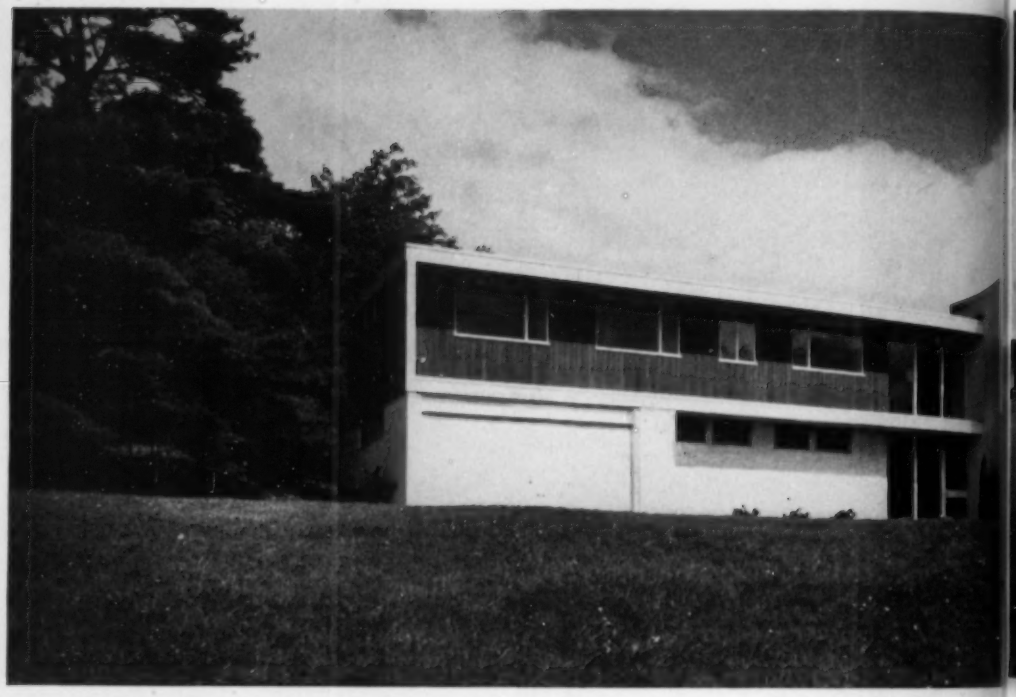
Ezra Stoller: Pictor

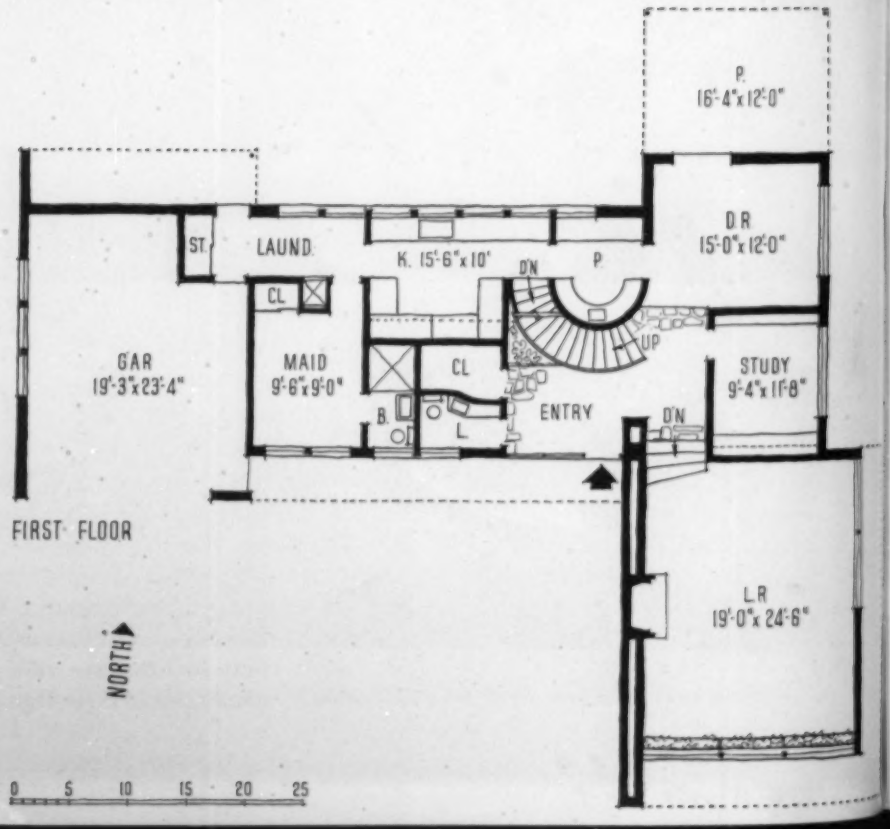
***E. H. & M. K. Hunter, Architects***

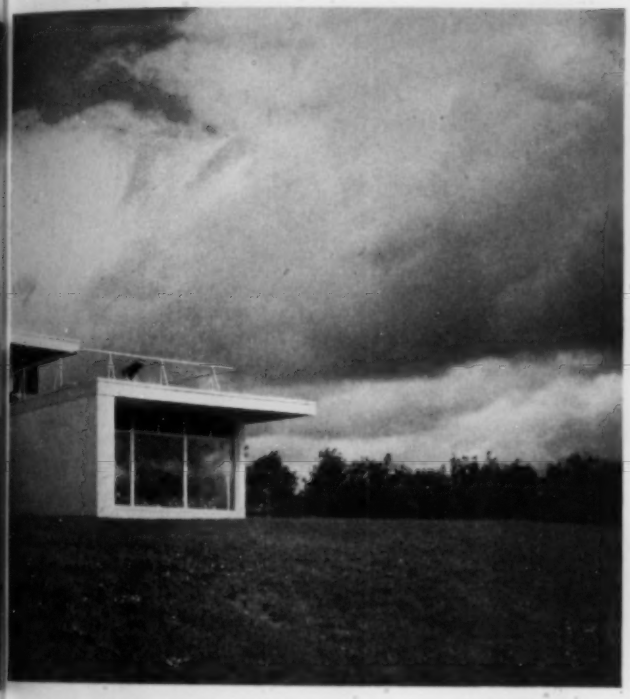
MR. ELDREDGE, a Dartmouth professor of sociology and planning — at Hanover, N. H., just across the Connecticut River — chose this site during his student days. Mrs. Eldredge, an Englishwoman, saw the house plans in England prior to their marriage. The architects, whose office is in Hanover, knew the 8-acre hill-top site and were able to exploit fully its extensive view of river valley to the south, and the mountains of New Hampshire and Vermont to east and west.

## Eldredge House



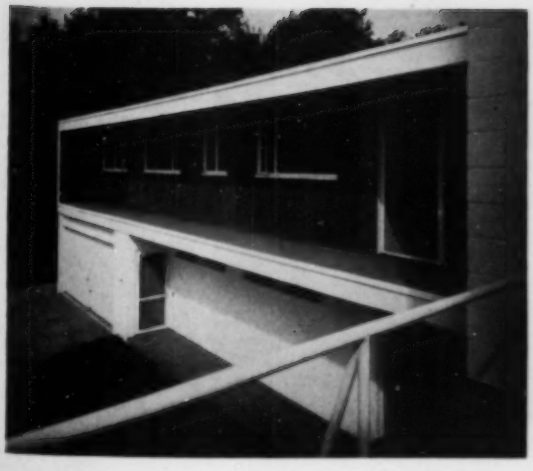







Ezra Stoller: Pictor

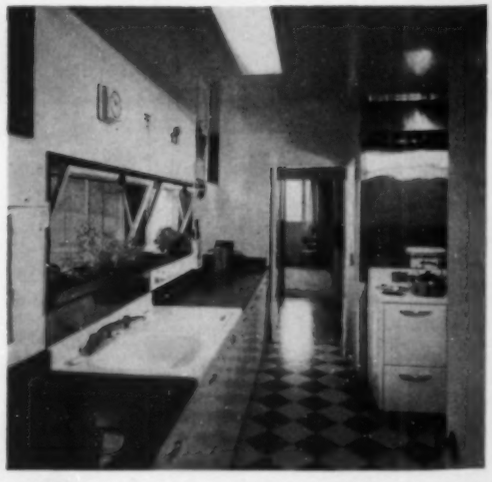
*Sitting in a 5-acre open field — the rest of the site is wooded—the house is reached by two dirt roads leading up from the valley; a Jeep negotiates the climb in snowy weather. The menage is planned for a pair of servants whose first-floor quarters together with kitchen and laundry are completely separated from family living areas, a requirement expressed visually by the heavy masonry chimney-wall which, on the exterior, is the dominant vertical. To it the horizontal of roof and sunshade projections are deliberately, strongly opposed. This is a conscious composition; it has a definite idea to convey: the house is a setting for urbane people who entertain handsomely, on a rural site but with no hint of rusticity even in the cypress siding*



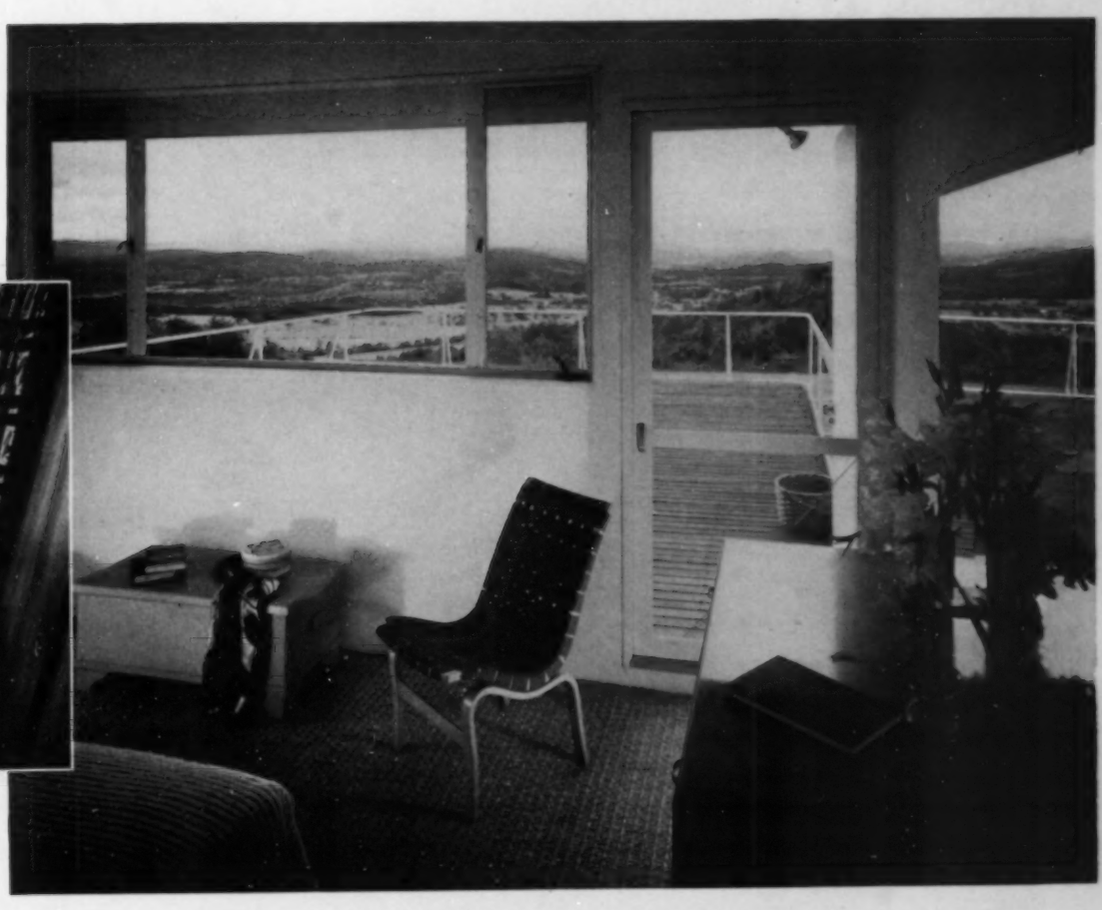
## Eldredge House

*Mrs. Eldredge has a great interest in painting; hence the studio and wide, northlighted corridor for exhibiting pictures. At right, master bedroom, bath-dressing-room and deck. Below, right, living room; imagine the reaction of a guest standing in the entrance hall, four steps above the living room, seeing through the opposite glass wall fifty miles or more of the Connecticut valley*

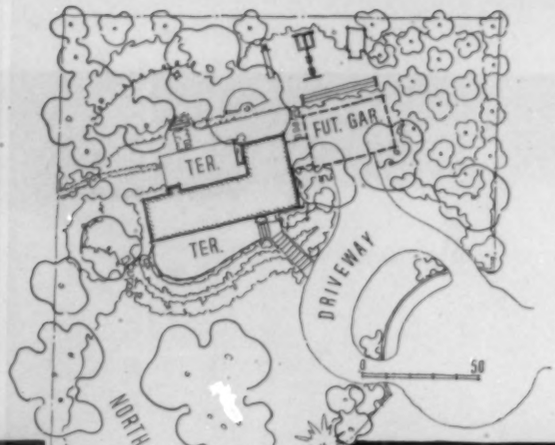
Ezra Stoller: Pictor



*Kitchen: full electrical equipment, including garbage disposer. Visible beyond is pantry, constantly used in preparing refreshments*

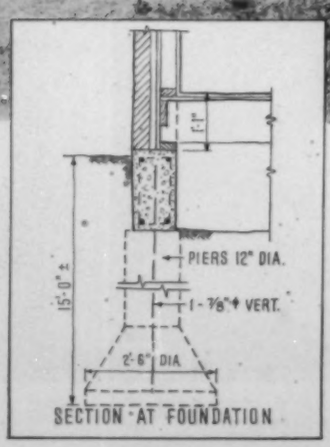


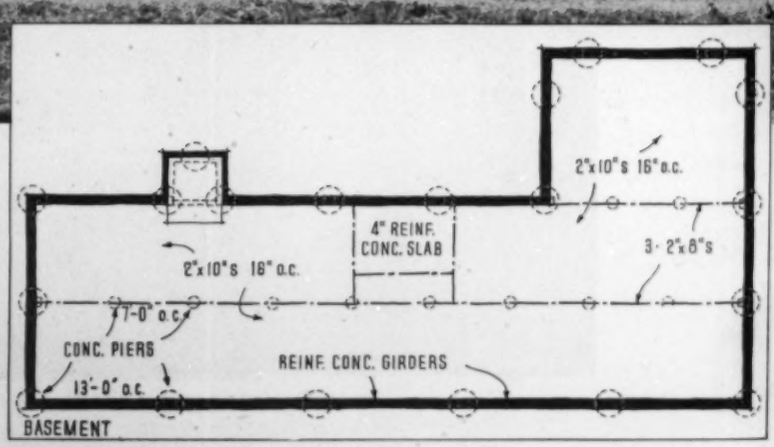
# ARCHITECT'S HOUSE




*Location of the house at the end of a cul-de-sac helped secure privacy despite large glass areas. Angling took care of view and breeze*

Studtman Photo Service

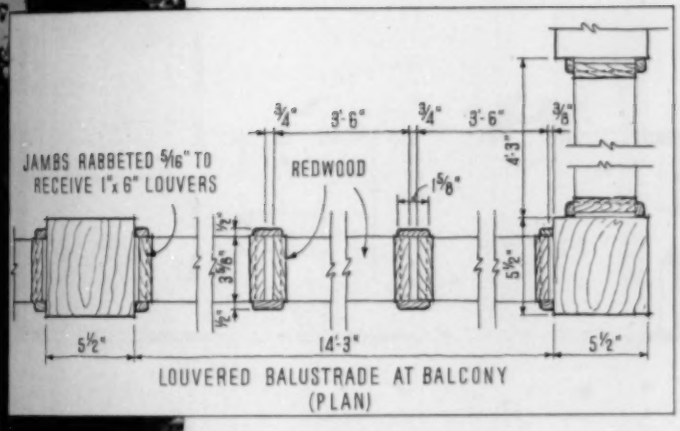


# COMBINES PRIVACY WITH A SWEEPING VIEW

Residence of Mr. and Mrs. Louis F. Southerland, Austin, Texas

***Page, Southerland and Page, Architects***



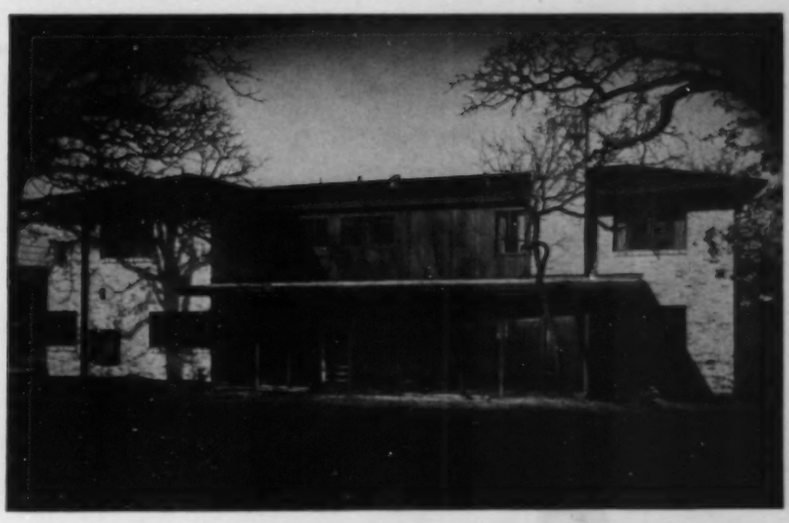
LOUVERED BALUSTRADE AT BALCONY (PLAN)

SITE conditions, a view to the northwest, and a prevailing breeze from the southeast gave this house its shape, says its architect-owner. "We wanted to spread it out and see the view of the low mountains and hills from each room. This also worked well with the site contours — a long house parallel with the contours."

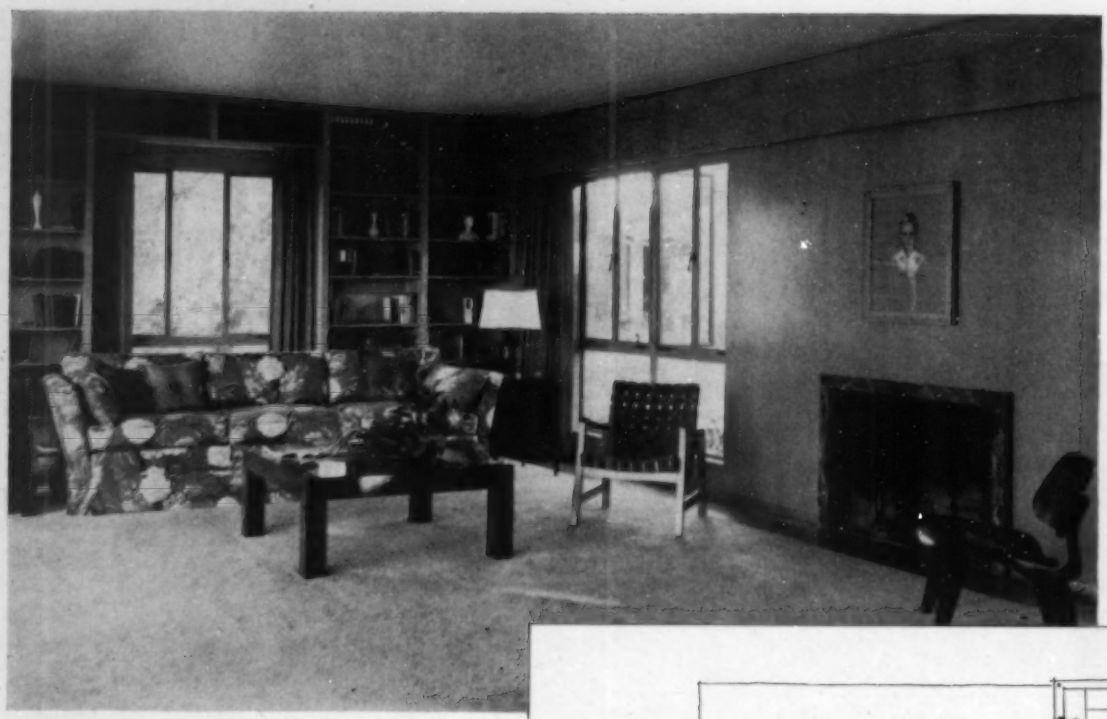
Implicit in the plan, of course, is a consideration of the Texas climate. Glass was used lavishly on the north side for the view, sparingly on the south for protection from the hot summer sun. Careful angling on the site not only shields the house from the road but also opens every room except the guest room to the prevailing south and east summer breezes. Every room has cross ventilation. There are two terraces, a screened porch, a generous balcony, frequent access to the outdoors. Eventually there will be air conditioning (the ducts of the forced warm air heating system were sized to permit it), and a carport with a game or hobby room above it.

The house appeals to many people who usually dislike the non-traditional, Mr. Southerland says, and is, he believes, "contributing a little to the cause of modern residential design locally." Construction is wood frame, veneered with old brick salvaged from the demolition of an old brick kiln. Terraces and front steps are of the same brick, laid dry on sand. Siding is redwood, windows are steel casement. Floors are pecan wood, waxed, except in baths and kitchen.

Mears Studio Photo Service

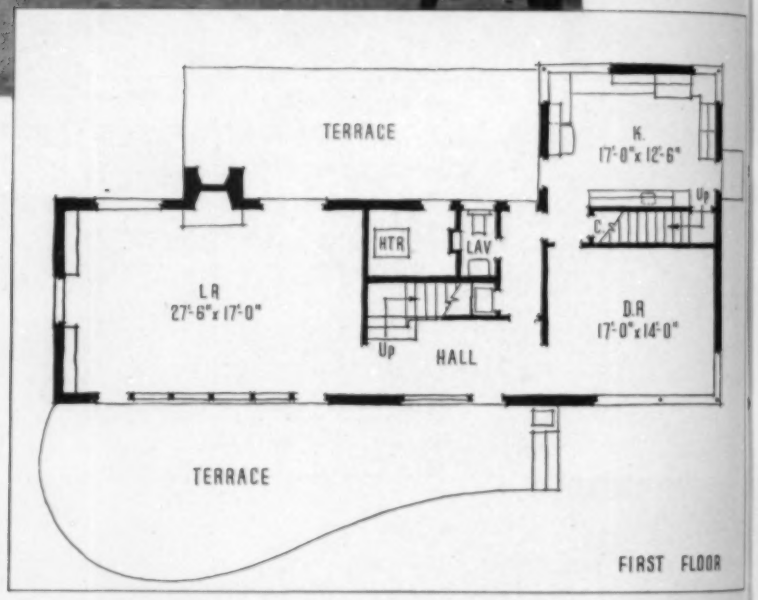


*Foundation plan (left) fits local soil conditions: concrete piers supporting reinforced concrete grade beams replace foundation wall*



Studtman Photo Service

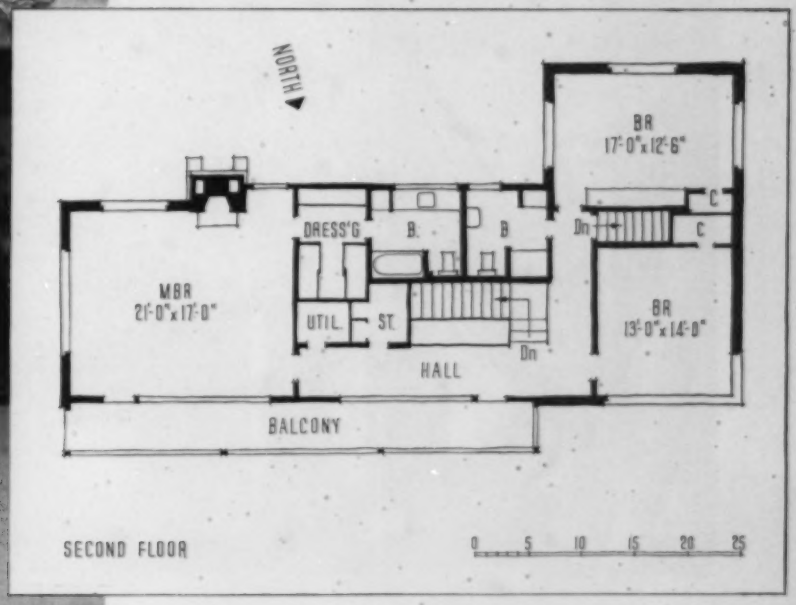
*Interior walls are gypsum board to which plywood has been glued in living room and entry hall. Living room has two views — one of oak grove and creek (from windows in photo above), one of the hills to the north (below)*




University Studio

*Best view in the house is from the balcony, to which master bedroom opens directly. Balcony overhang protects living room's "glass wall" and permits opening of some windows even in the rain. Louvered balustrade affords privacy to bedroom without cutting down ventilation*

Studtman Photo Service



*Mexican handmade tile was used for fireplace and hearth in master bedroom (right), Italian marble of deep green for living room fireplace (opposite page). Lighting generally is recessed incandescent, but living room has cove fluorescent. Ceilings in kitchen and bath are acoustic tile*

# MICHIGAN

Elmer L. Astleford

# BELL TELEPHONE BUILDING

Birmingham, Mich.

*SMITH, HINCHMAN & GRYLLS, INC.*
*Architects and Engineers*

*Joseph W. Leinweber*
*Project Director*
*Minoru Yamasaki*
*Project Designer*

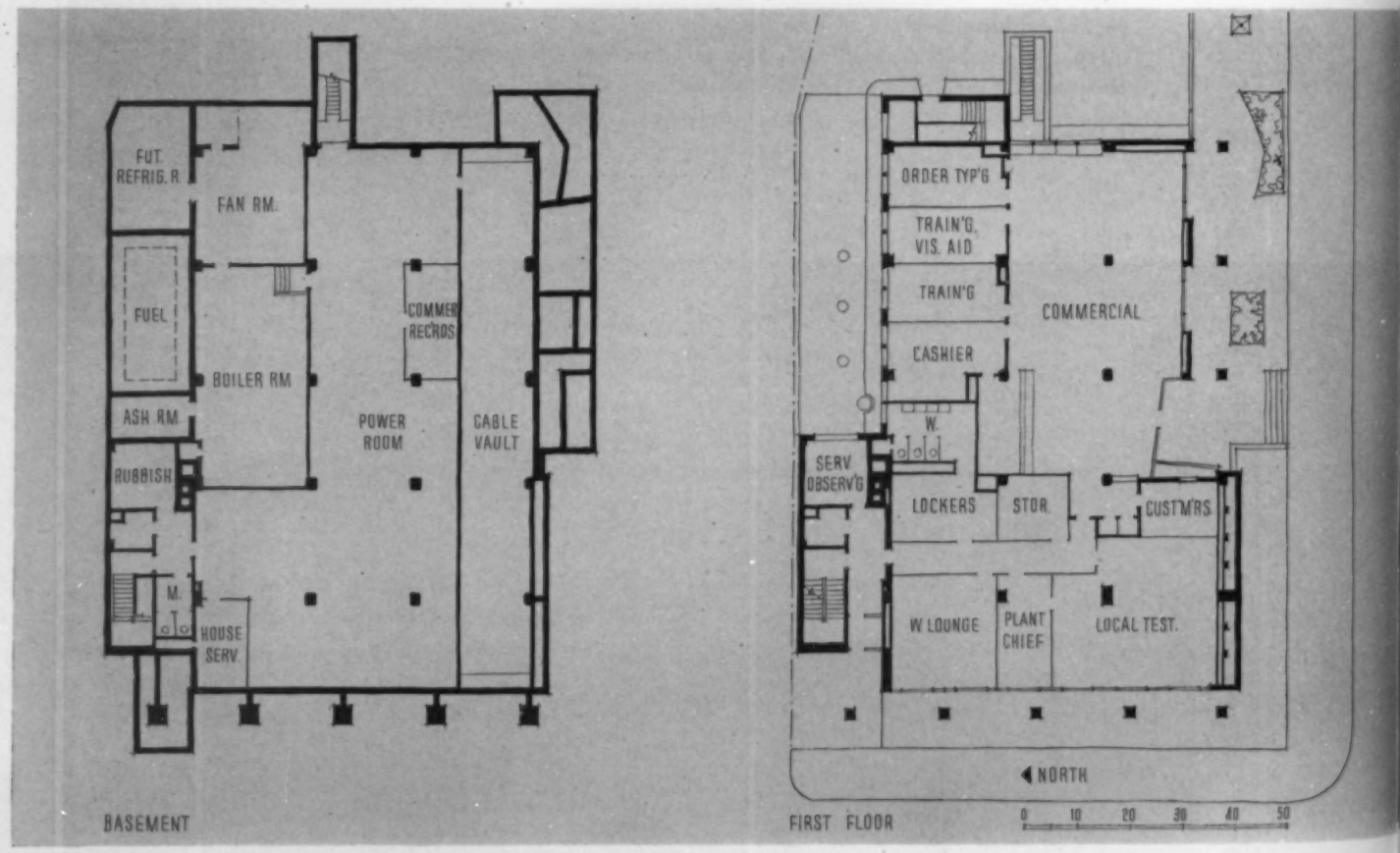
WHILE it might seem that this little building could expect almost universal approbation, it was the subject of considerable controversy. Early publication of the drawings in the local paper brought out a citizens' committee which urged a return to more conventional styling. The committee sought to preserve a civic center concept in the "Tudor Gothic Revival" style of the City Hall across the street. The newspaper, and many other citizens, however, sided with the designers, and protested the thought of "horse and buggy architecture." The little story closes like many another episode in the advancement of architecture — now that the building is finished it enjoys virtually universal acclaim.

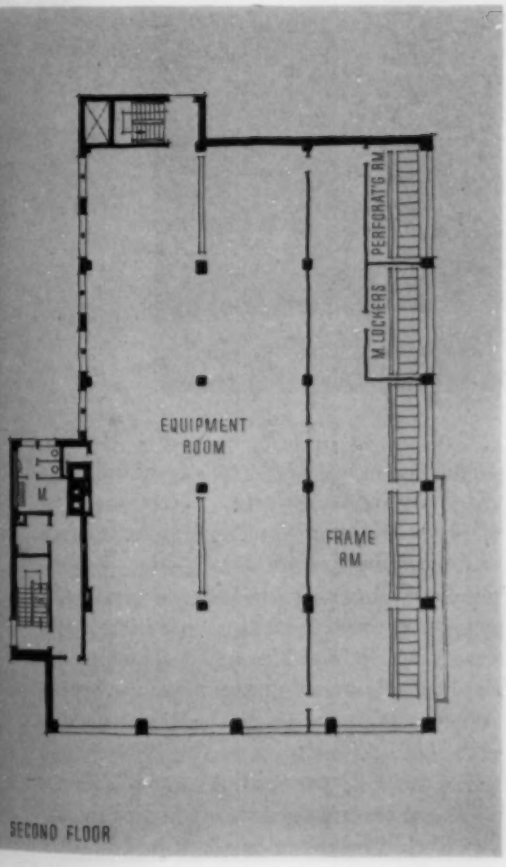
The area of the equipment room, second floor, set the size of the building on its site. First floor requirements were smaller, so it was possible to set the building back at this level to give a feeling of spaciousness next to the sidewalk and increase the planting area, which, more than anything else, fits the building into its civic surroundings.

*First floor areas are finished to create an architectural separation between public offices and desk areas; for the public areas, slate floor, cypress board walls, indirect lighting; for the desk area, linoleum floor, plastered walls and indirect lighting*

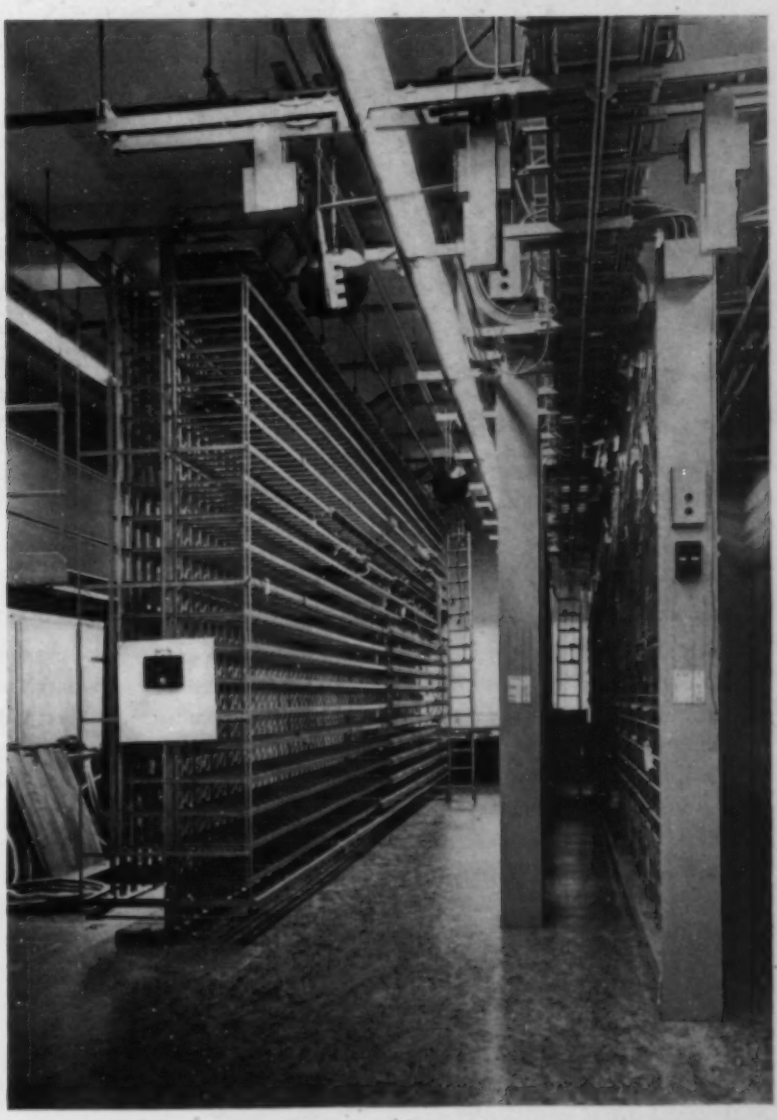
For this building with its large glass area, a heating system was chosen which would not require either direct radiation or elaborate split systems. It is a pressurized supply system with high velocity air. Small ducts are used with air velocities of 3000 fpm, with air control nozzles directing air into the room air mass at perhaps 2000 fpm. This produces a "non-directional boiling action," and quite uniform temperature diffusion. This system also keeps the building under positive air pressure, to reduce infiltration of cold air and dirt at doors and windows. It makes possible too the later installation of refrigeration, the same ducts being usable for cold air distribution. It is also said to give increased freedom of design around a public entrance, since a jet of warm air can be used instead of a vestibule.

Elmer L. Astleford






SECOND FLOOR



Pawley

# MOTELS

*prepared by*
***Frederic Arden Pawley, Architect***

*This comprehensive study of the architectural requirements of a multi-million-dollar industry was undertaken by Mr. Pawley at the joint request of* Architectural Record *and* Hotel Management, *in which it also appears. This editorial collaboration has made it possible to assemble in one place information from a diversity of sources. Unifying the data obtained from both architects and motel operators should help each to appreciate the value of the other's training and experience*

Julius Shulman

## INTRODUCTION

Someone has said that the motor court was sired by the tourist cabin and dammed by the hotel. The offspring is now considered a legitimate get of an economic trend and the transportation-accommodation preference of the American public. These tendencies are here examined in detail as a basis for architectural planning and as promotional background for architects interested in this $750,000,000 business (estimate copyright *Tourist Court Journal*). Recognition of needs of motorists and of the automobile as a planning unit are basic appeals of the motor court. As in colonial days, today's roadside inns, spaced at convenient day's journeys from each other, provide lodging, food and protection.

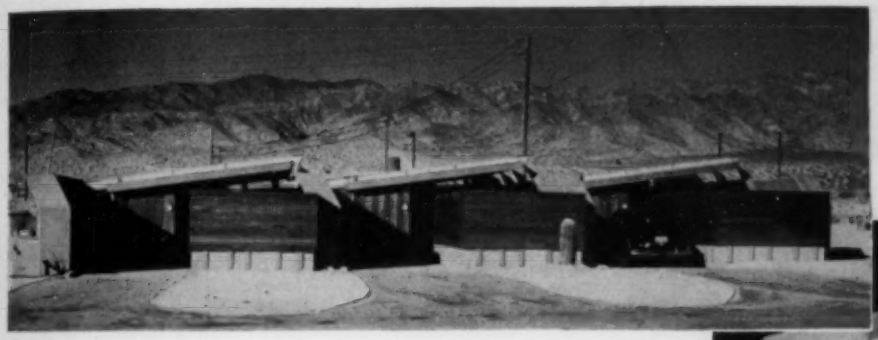
The hotel, a result of urban and resort concentrations, of development of railroad and elevator, and of the concept of superior service to guests, became a vertical structure for many urban reasons. It fell into a deep financial hole after the overbuilding boom of 1922–29 from which over 80 per cent of the nation's hotels emerged by way of bankruptcy, foreclosure and reorganization. Ten years later New York City still had many empty hotel rooms despite a two-year World's Fair. An occupancy of 70 per cent room capacity meant a going business, however, because operating costs were still depressed. World War II sent hotel occupancy to 93 per cent and raised operation expenses; the break-even point is now as high as 85 per cent occupancy. Occupancy for the country as a whole for 1948 was 86 per cent, for half of 1949, 84 per cent. Average "sale per occupied room" (room revenue or rate) is higher than it has ever been, reflecting increased costs of hotel operation. Charts on next two pages show these trends, growth of motor hotel idea and important underlying travel statistics.

Motor courts, a depression-sown industry, sprang up in abundance in the 30's as tourist cabins. Many are the euphemisms for their most profitable kind of busi-

Julius Shulman

*Examples abound all over the U. S.: top row left, Skyline Motor Hotel, Front Royal, Va.; center, Pepper Tree Inn, Palm Springs, Calif., Stewart Williams, Archt.; right, Return Motor Court, New Market, Va., Clarence W. Wenger, Archt.*

Pawley



Julius Shulman

Rodney McCay Morgan

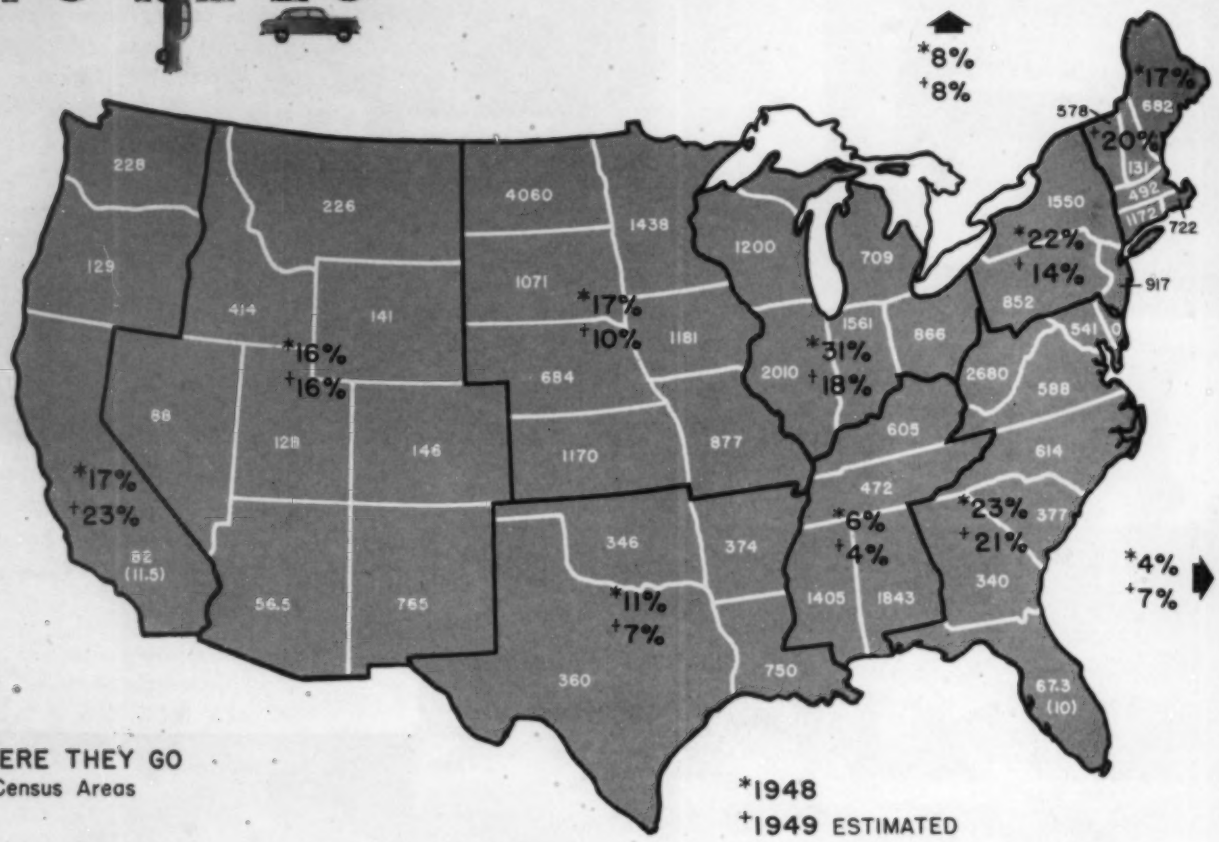
*Bottom left, Palm Springs Biltmore, Palm Springs, Calif., Frederick Monhoff, Archt.; center, Contentment House, Desert Hot Springs, Calif., John Lautner, Archt.; right, Adobe Villas, Miami, Fla., Alfred Parker, Archt.*

ness. We hear of one which turned away any travelers with luggage on Saturdays and Sundays. Conditions were so bad that in 1940 the Chief of the FBI published a popular magazine article tracing a number of crimes in lurid detail to tourist camps. (14) This blast forced a better element of operators to associate and in self-protection to develop standards of management policy, equipment, specifications and sanctions against offending members. Inspection and listing by Duncan Hines and the A.A.A. have also come to indicate acceptability. Elmer Jenkins, A.A.A. National Touring Director, states that of approximately 30,000 motor courts in the country their Accommodations Directory (131) lists only 3522 (about 1 in 12) and that only about 1 in 30 is recommended without qualifications. From a quick check it would appear that about 1 in 100 has architectural interest or planned efficiency.

The reason for this is not only Topsy-growth, but also development of planning, construction and finish specifications by lay associations of operators. A 1946 survey indicated that 18 per cent of courts reporting employed architects. Investments in motor court construction are by no means beneath an architect's notice. *Tourist Court Journal* (128) recommended in 1940 that no new court be built for less than $50,000. In 1948 the *average* investment, for the country as a whole, including land and equipment, was about $70,000 (average 20 rental units). The U. S. Department of Commerce Small Business Manual on motor courts (9) recommended (1945) a size of 35 to 50 rental units, with 10 units an absolute minimum. Costs per unit, completely furnished, are now between $3500 and $5000, but horizontal construction is estimated at ⅓ of vertical. City hotel costs per room are $12,000 to $24,000, including full hotel facilities.

The industry sells a fugitive product. "At the end of a day's operation, any room not sold is a piece of merchandise that has perished . . . revenue . . . has

# MOTELS




**WHERE THEY GO**
By Census Areas

*1948
+1949 ESTIMATED

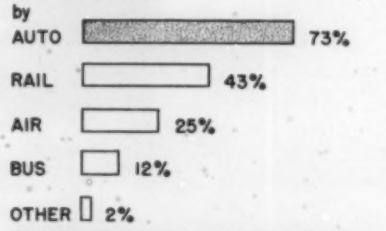
*Small figures show motel density (ratio, total rural surfaced highway mileage to number motels listed by A.A.A. — and for Fla. and Calif., total courts). Large figures: where vacation travelers go*

**HOW FAR VACATION TRAVELERS GO**

| TRIP DISTANCE | ACTUAL 1948 | ESTIMATE 1949 |
|---|---|---|
| <500 MILES | 20% | 13% |
| 500–1000 | 22 | 17 |
| 1000–1500 | 16 | 13 |
| 1500–2500 | 19 | 23 |
| >2500 | 23 | 34 |

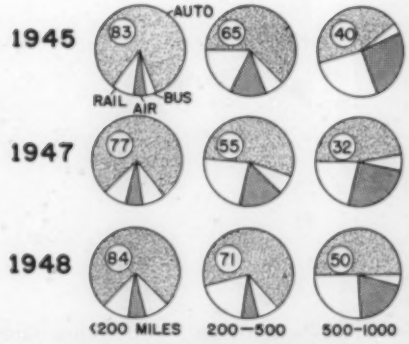
VACATION TRAVEL

**43% OF MEN REPLYING TOOK OVERNIGHT BUSINESS TRIPS (AV. 9 TRIPS EACH IN 1948)**




SOME REPORTED MORE THAN ONE METHOD OF TRAVEL

BUSINESS TRIPS



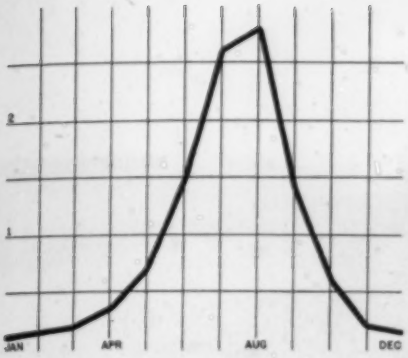

TRANSPORTATION PREFERENCE

been lost forever." (9) Every effort must be made to keep occupancy high. The architect can help in this by providing the sales appeal of good design and planning, which the operator has approached only in a tentative, inexperienced fashion.

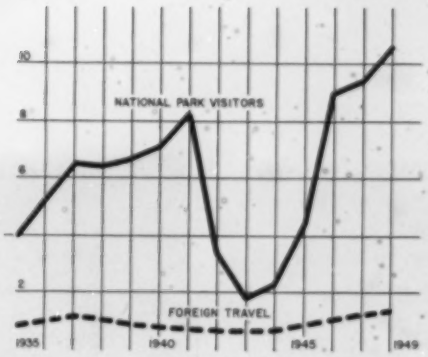
Extravagant claims concerning the number of chain motor court operations already planned and ready for construction have not materialized. Motor hotel profits are high for a hard-working husband-and-wife team of owner-managers (nationwide average net profit 29 per cent for 1948, equal to 9.6 per cent on investment). Mr. Louis Toth of Horwath & Horwath, Hotel Accountants, reports, on the basis of a number of studies, that chain operation will not work — that the owner must be present daily. Long hours, temptation to relax standards, possibility of organized 3-shift labor, militate against a chain, non-resident-owner operation. The obvious answer would appear to be Howard Johnson or oil-company-filling-station franchise type of organization with profit-sharing owners-managers associated for mass buying, advertising, financing, etc. As far as can be ascertained such an operation of any considerable size does not yet exist in this field.

Proposals have been made to create a series of satellite motor hotels around a main city hotel, tied in with switchboard and other services. Intent was for outlying units to feed guests to the central hotel and take overflow. Result in one case tried was reversed flow! Guests too late to stay in motor hotel went reluctantly to big hotel, where they had to buck all the vexatious prob-

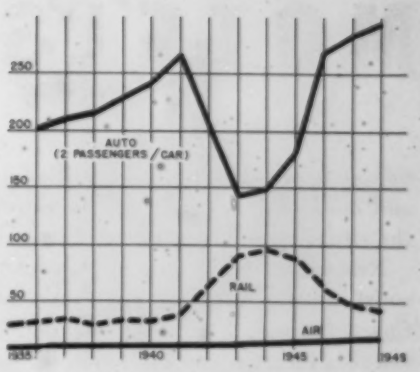
*Travel data on this page from American Magazine, "1948 Travelogue".*




MILLIONS OF VISITORS, NATIONAL PARKS

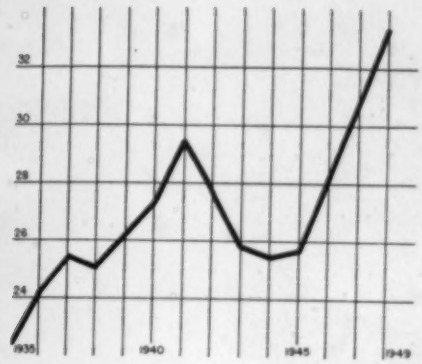



RATIO, DOMESTIC TO FOREIGN TRAVEL



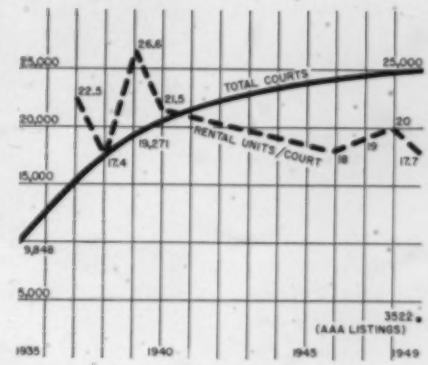

BILLIONS OF PASSENGER-MILES

Sources, this row, "Survey of Current Business"



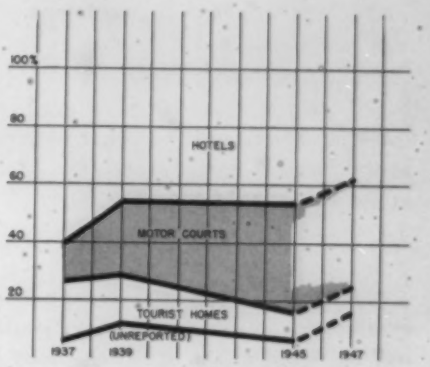

PASSENGER CAR REGISTRATIONS, MILLIONS

Source: A.M.A. "Facts and Figures" (PRA)



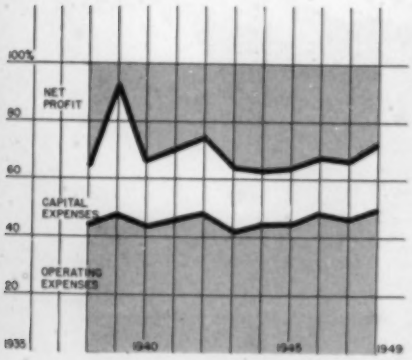

NUMBER OF MOTELS IN U.S.A.

Source: Tourist Court Journal



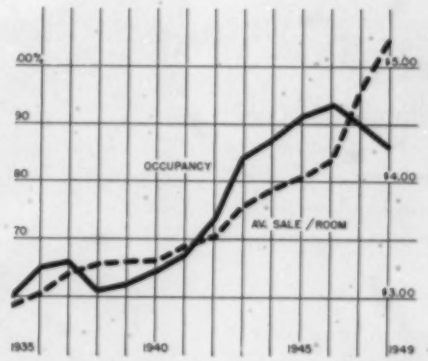

MOTORISTS' PREFERENCES

Source: Am. Automobile Ass'n.



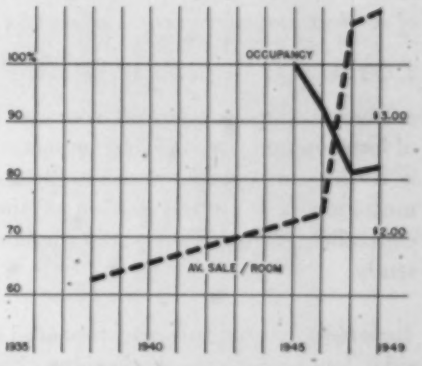

MOTEL OPERATIONS (% R'M. SALES)

Source: Tourist Court Journal




HOTEL OCCUPANCY, AVG. SALE PER R'M.

Source: Survey of Current Business




MOTEL OCCUPANCY, AVG. SALE PER R'M.

Source: Tourist Court Journal

lems which the motor hotel solves: heavy traffic, parking trouble, car storage charges, the luggage dilemma, tips in and out, the parade of tired and wrinkled family through a busy, critical lobby, city noise and city atmosphere. (36) A hotel accountant executive on a trip to Florida with suites available to him without cost at leading hotels found his tips and other expenses made paying his way in motor courts (with newer furniture) less expensive than accepting the free hotel accommodations.

A year ago the American Hotel Association made an extensive survey of roadside housing, parts of which were condensed into a booklet, "How to Sell the Motor Traveler" (1). Many constructive suggestions were made and a number of hotels have now recognized the automobile by providing motor lobbies and special services. A feud of considerable heat has been waged by the motor court trade papers. The recommendation, based on this survey, that the hotels should get into the motor court business, and publication of a number of motor courts in architectural and hotel periodicals, resulted in a flamboyant headline, "Lo, How Have the Mighty Fallen!" (32) in one motor court magazine. Apparently its editors were not aware that, some years earlier, architects had advocated a building type combining some hotel facilities with special motorists' accommodations. These Highway Hotels, Outpost Inns or Motor Hotels are a more impressive expression of the idea, which is as old as the early Federal hotels and later resort centers. A danger is latent: if the operation takes

# MOTELS

on too many of the hotel's traditional services, functions and maintenance problems, operating costs mount and the situation becomes circular and vicious.

Restaurant service is not agreed upon in the motor court industry (18.3 per cent have coffee rooms; *Tourist Court Journal*, 1946). One deluxe Western court in a suitable location reports food and drink revenue three times that from rentals. It is agreed that no one should start a food operation in connection with a motor court without experienced management. Filling stations are also not considered desirable unless isolation demands them (25 per cent; *Tourist Court Journal*, 1946). National statistics show a very gradual growth of motor court income from these other sources of revenue except in the North Central states, where they gained in 1948 at the expense of room rentals.

●

*The following program notes can be used as a check list by an architect designing a motor court or motor hotel and will be found to contain suggestions for all parts of the project. They are based on recommendations of a number of architects, experienced operators, travel executives and travelers. Certain operational items (not requiring architectural provisions) have been included to indicate the scope of services and conveniences offered by some installations.*

## LOCATION, SITE, PLOT PLAN

Since all business comes from the highway, selection of location and site is of first importance. Site treatment is no less important, because the basic appeal of the motor court is its recognition of the automobile as a controlling factor. Plot plans therefore deserve careful study.

***Relation to automobile travel:*** Location must consider loci of average day's rides (200–400 miles) from other stops on natural touring routes to national parks, resort areas and other vacation regions.

***Relation to town or city:*** Availability of: employees, fuel, water, electricity, gas, sewer, laundry service.

Proximity to restaurants & service stations (if not provided).

Traveling salesmen visiting town or city are often important year-round, repeating source of business.

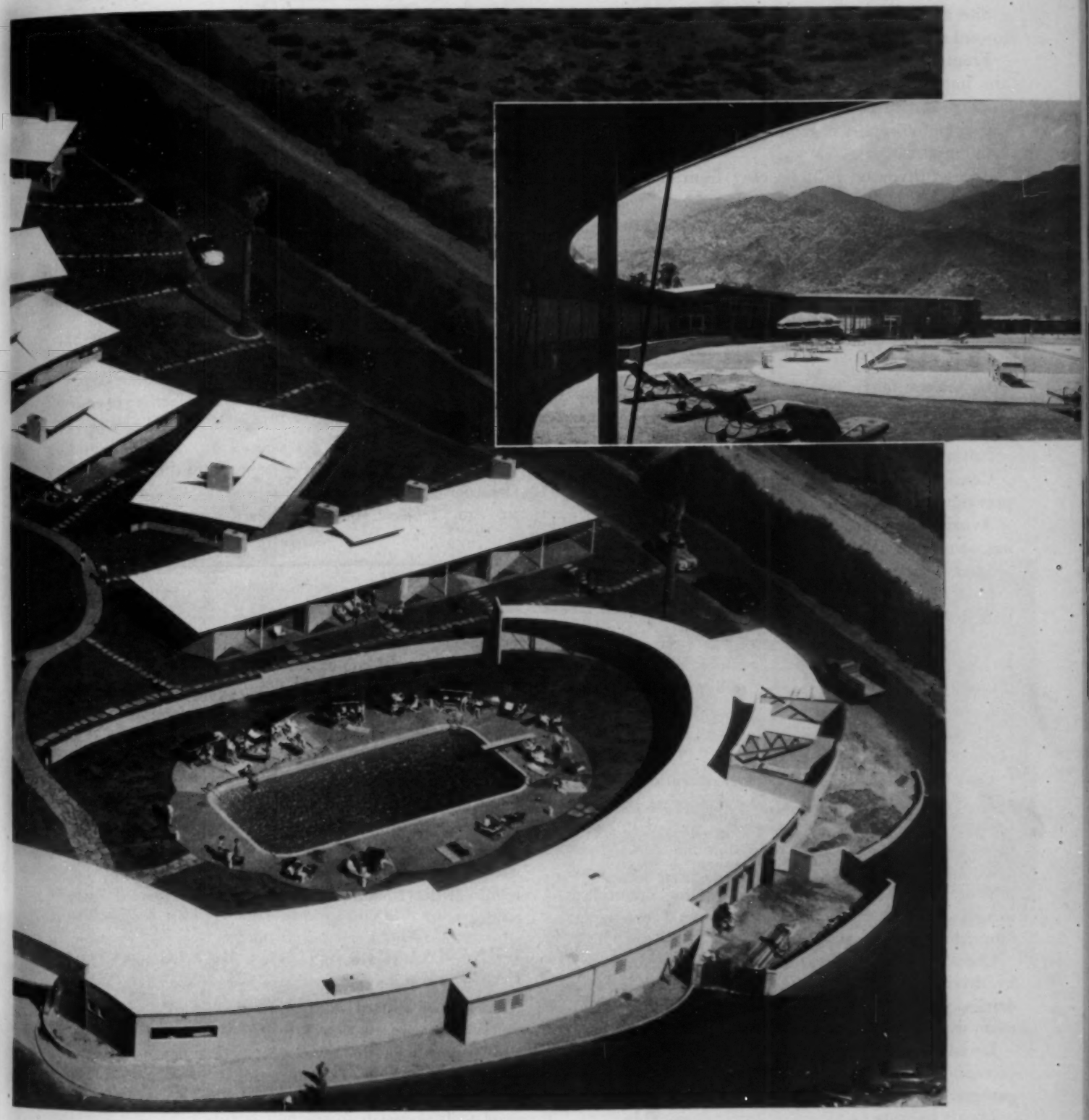
If a restaurant is provided, the nearby town or city must also be considered as a source of food, supplies, waste disposal and local business.

Availability of taxicabs may affect local business.

***Relation to highway:*** First step in considering locations is to study current federal, state, local highway and traffic planning programs.

Secure passenger-traffic car counts.

Julius Shulman



*Site plan of Palm Springs Biltmore, Palm Springs, Calif. (Frederick Monhoff, Archt.) is evident in air view. This type of facility, with swimming pool, restaurant, lounges, etc., and in resort country, is increasingly used for stops longer than overnight. Indeed, many motels are built for exactly this purpose*

# MOTELS

Site should be on righthand side of highway going toward city unless on bypass.

Frontage on highway and sight distance for motorist are important factors in stopping cars. Minimum frontage should be 500 ft; 800 to 1000 ft is preferred. Car going 60 mph will stop comfortably in about 400 ft (40 mph, 200 ft).

Access driveway must be easy from either side of highway.

If a dual road exists or is planned, proper authorities must be consulted to make certain of island crossovers.

Rake of highway headlights across site must be considered.

Avoid sites near hills. Grades create stopping and noise problems (up or down).

***Site:*** Select fairly level ground to avoid expensive grading, foundation, driveway construction.

Good natural drainage is highly desirable.

Natural features are valuable: trees, water, views.

Consider orientation, microclimatology: sunlight, prevailing winds, lay of land.

Avoid location near other motor courts. Check zoning, ownership, availability, plans of owners of adjacent property. Motor courts do not thrive on competition. Consider acquisition of land to prevent competition and undesirable neighbors.

***Driveways, parking:*** Stabilized or hard-surfaced driveways and parking areas minimize noise, dust (affects room maintenance).

Blacktop decreases sunlight glare and bad appearance of oil drippings.

Plan driveways and parking for: operation, appearance. (1) Route first to office (local temporary parking), then to parking, carports or garages related to rental units, finally to exit. (2) Curved alignments, staggered setbacks, angular placement of buildings can be planned to increase privacy and improve building orientation as well as to break up rigidity of traditional rectangular "tourist court" plot plan.

Check access to, curvature, grades of all driveways by driving over them before final construction. Plan driveways to avoid rake of car headlights across bedroom windows.

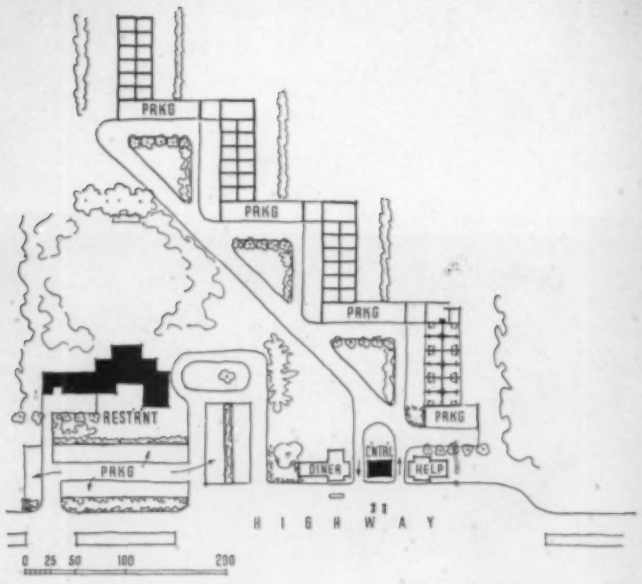
Decision on type of parking is basic: (1) outdoor (acceptable unless extreme climate); (2) carports; (3) garages.

Locate parking as near rental unit as possible.

***Landscaping:*** Project must appeal to motorist from highway. Trees, shrubs, flowers, lawns, a stream or pond, every natural feature, should be exploited for its attraction value and made easy and economical to maintain in good condition. Landscaping can also afford windbreaks, some degree of noise screening, shade, backgrounds, and can cut off undesirable views.

Local and regional planting varieties and schedules, required amount and availability of water for use on grounds, help for maintenance, planning and details to facilitate maintenance are all factors which in a larger-scale project indicate desirability of retaining a landscape architect, at least as a consultant.

Garden furniture should be chosen for durability and resistance to exposure. It should be painted light colors if used in evening. Steps, railings and lights may be required. Paved walks will reduce dirt carried into rooms.

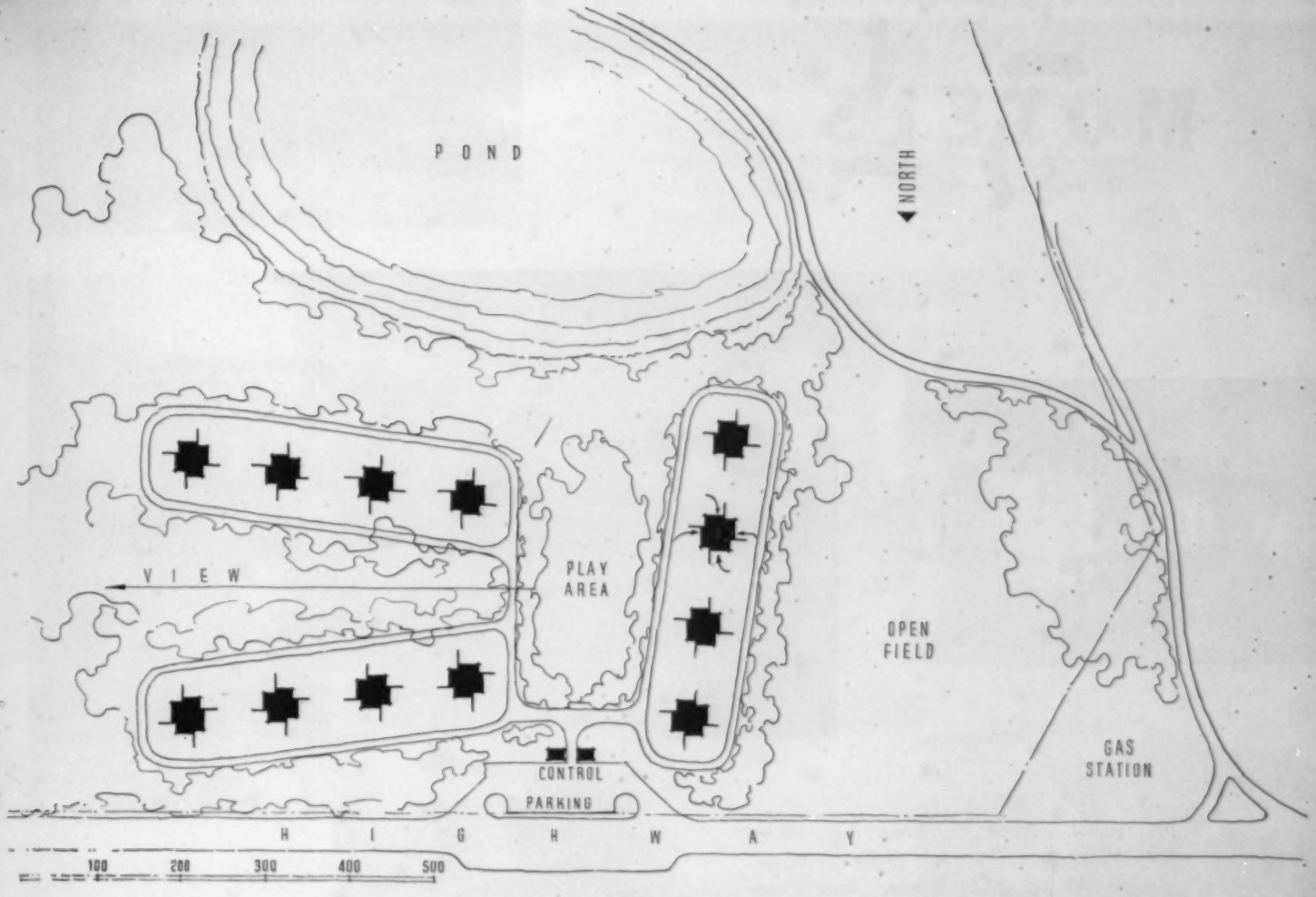



*Two examples of site planning for multiple-unit motels (David Fried, Archt.): above, 12-unit buildings each with utility room; common parking for each building, not usually considered as satisfactory as individual car parking at each unit. Opposite page: four-unit buildings each with central utility core, parking at each unit's door. In both examples, "front office" control is at highway entrance. Restaurant, gas station, etc., are independent of motel proper, though somewhat related. Photos: top, attractive landscaping, Motel Robert, Christiansburg, Va. (Stone & Thompson, Archts.); below, light paving reflects glare, heat, shows dirt*

## GENERAL PLANNING; BASIC FACTORS

***Number of rental units, employees:*** Usual initial motor court construction is 10–20 rental units. Husband-and-wife team can handle not more than about 12 units without extra help. Latest national average (*Tourist Court Journal*) is 17.7 units. Usual allowance is one maid to 10 rooms.

***Provision for expansion:*** Many motor courts are built with expansion in mind and it is undoubtedly wise to underbuild (but not less than 10 units). Expansion is almost invariably horizontal, by additional structures rather than by additions to existing buildings, except




Pawley

restaurants. There are few two-story courts in spite of possible construction and maintenance economies. Unfortunately, an ultimate plan is rarely visualized at the start, and final results are often crowded, with poor access or other bad relationships. Some of the older installations show a great variety of rental unit types; improvements were made when newer units were built.

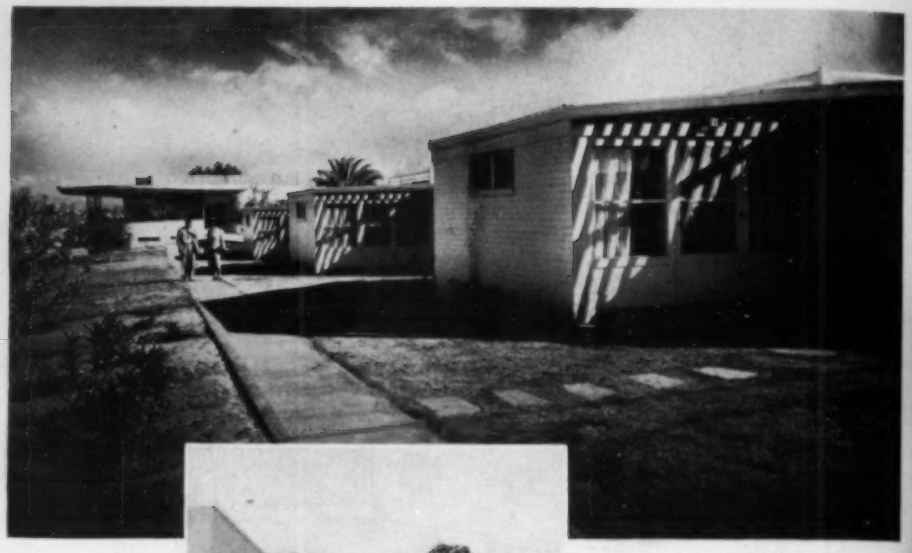
***Flexibility, Variety:*** Flexibility of the rental unit plan is important and will be discussed later. In general, one may provide for alternate expansion areas and multiple uses of common facilities such as lounges, recreation or dining spaces. Another type of flexibility is involved in off-season closing of certain units — a good argument, where seasonal volume varies, for dividing total number of rental units into groups of 4, 6 or 8 to a building with separate utilities or cut-offs for each building. (Even-numbered groups preferred for backing up adjacent plumbing.) Variety will occur automatically in any adequately landscaped site. Attempts to achieve it by "architectural" or stylistic methods are soon dated and lose interest. In addition, the maintenance burden is increased in direct proportion to embellishment.

***Combined or Separate Structures:*** Often the owner-manager's quarters are in a typical rental unit in the first stage of a small operation. A more developed type will provide an apartment with cooking and dining

# MOTELS

Pawley

Pawley



Julius Shulman

Pawley

*Typical rental units: top, Princess Anne Motor Lodge, Williamsburg, Va.; left, El Rancho Motel, St. Albans, W. Va. (Robert Martens, Archt.); center, Tucson Biltmore, Tucson, Ariz.; right, Skyline Motor Hotel, Front Royal, Va.*

facilities and private garage. This may be buffered from rental units by service spaces such as linen and utility rooms.

Individual cottages are more expensive to build than rows (unless terrain is uneven) and may give an unsubstantial appearance compared with 4, 6 or 8 unit buildings which provide more imposing architectural masses.

***Circulation:*** Seasonal or weather considerations will affect planning of circulation. Covered access to rooms is desirable for guests and maids. Avoid changes in levels, if possible, to facilitate servicing and guest access. Some plans have covered circulation on one side and private covered terraces on the other.

***Carports, Garages or Outdoor Parking; Dining Facilities; Service Station:*** All these basic factors should be considered in the preliminary general planning and provided for or discarded at the outset, unless the site is large enough to permit later decisions.

## MAIN BUILDING; RENTAL OPERATIONS

***Covered drive at office:*** For protection of guests; for discouraging trucks (low marquees used for same purpose by some service stations).

***Lobby:*** For guest registration, rent payment, information, waiting, convenience sales. "Front desk" may be a small writing surface or can be dispensed with entirely if someone is always available to take care of guests at their cars. Registration card can be filled out and rent payment made in rental unit.

***Office:*** For key-rack, safety deposit box, bookkeeping, purchasing, publicity, etc. Keys are best kept in locked cabinet (one standard visible key control system has considerable variety and capacity of equipment: wall cabinets, file drawers and hinged panels).

***Supervision:*** Careful planning can make manager's locations oversee many functions of operation and save considerable time and effort in supervision.

***Lounge:*** Newer courts are providing some common space where guests may gather, if they wish (particularly in bad weather), for social purposes, reading, letter-writing, waiting. It should have comfortable, durable furnishings, good lighting, homelike character; may have radio, television, bridge tables, desks, gift shop and wall maps.

***Public toilets:*** For larger projects, highway hotels, inns.

Robert Cleveland

Julius Shulman

Maynard Parker

Pawley

*Front offices: top, Santa Ynez Inn, Los Angeles, Calif. (Alfred Gilman, Archt.); left, Tucson Biltmore; center, Palm Springs Biltmore; right, Return Motor Court, New Market, Va.*

***Telephone booth(s):*** Particularly important if bid is being made for traveling salesmen (considered very desirable by some because of off-season and repeating volume).

Booth(s) should be oversize, have comfortable chair, large writing space, good light, fan, local and regional maps under glass, convenient telephone books.

***Telephone switchboard:*** Complete telephone service throughout rental units is too expensive for many courts to consider. Some have intercommunication wall units which can be used two-way between main desk and guest room. This requires a switchboard and operator. Guests feel safer with communication service.

***Service quarters:*** If project is isolated some employees may live on job. If not, locker rooms and toilets will be required. Check state labor laws for other requirements.

## HOUSEKEEPING OPERATIONS, MAINTENANCE

Procedure and operation of housekeeping department varies from one installation to another; quantities, etc., (from which architect can develop room areas and equipment) must be decided upon by owner. Following notes give general data.

***Linen:*** Operators are agreed on desirability of a central linen storage room under strict supervision. Four "turns" of linen are not enough to carry over a holiday weekend unless laundry service is better than average. This means shelf storage provision for *three* sets of everything changed daily: 1 set in room in use; 3 on shelf; 1 in laundry. In projects requiring several maids provide local, locked linen and room supplies closets for each maid. These may require spaces for:

| | | |
|---|---|---|
| sheets | bath mats | writing materials |
| pillow cases | soap | postcards |
| face towels | tissues | paper cups |
| bath towels | matches | sterilized glasses |

***Housekeeping storage:*** Cots or rolling utility beds (latter are about 18 by 40 by 46 in. high; mattresses; pillows.

***Service closets, etc.:*** For cleaning equipment and supplies; floor maintenance appliances; slop sinks. For larger projects consider specially designed maids' carts with shelves and racks for: linen and room supplies, cleaning supplies, equipment.

***Maintenance shops:*** For minor repairs and maintenance: Electrical; plumbing and heating; painting and

glazing. In extensive projects a Jeep or small truck can be equipped as a mobile repair unit.

***Storage:*** For grounds equipment (mowers, hand tools, ladders, snow plow(s), shovels); garden furniture (winter storage); recreational equipment.

***Fire protection:*** Insurance rates can be improved by careful consideration of fire protective measures throughout the project.

## RENTAL UNITS

***Identification of unit:*** Since motorists may arrive late, or may return to room late, building and unit identification should be provided. Buildings may be designated by letters, which should be prominently displayed, and rooms numbered as usual in hotels. Self-luminous letters and numbers may avoid necessity for insect-attracting, neighbor-annoying porch lights.

***General planning and flexibility:*** Current trend is to make all rooms large enough for two double beds whether furnished that way or not. If traveling salesmen are an important part of the business, single rooms may be provided; but if so, they should be large enough for refurnishing as doubles.

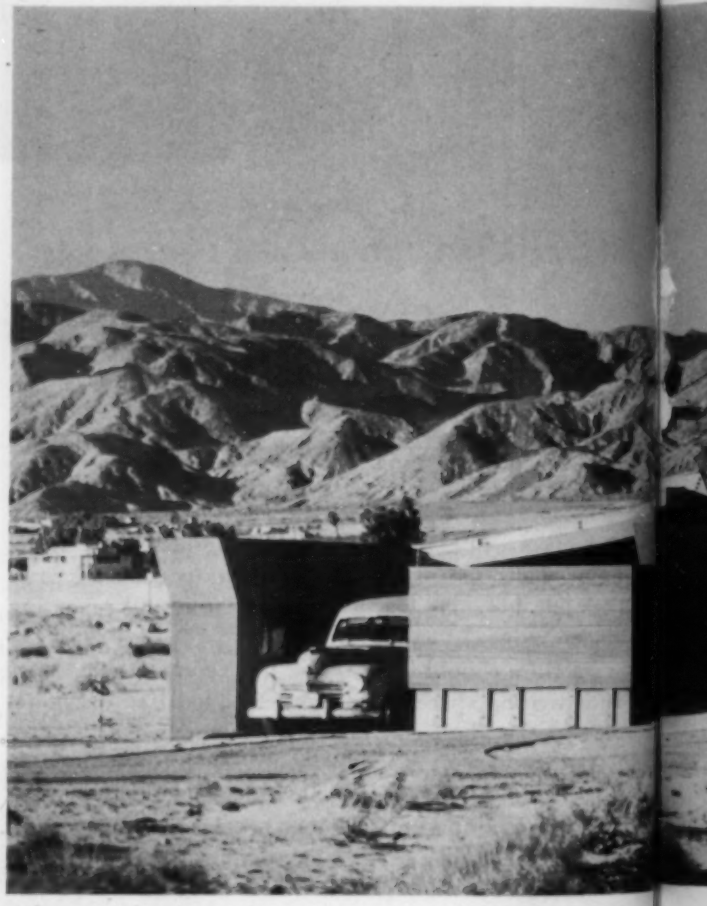
Corner rooms may be made large, provided with double interconnecting doors for use *en suite* with adjacent room and rented at a premium. Suites may also be arranged with an entry shared by two rental units which becomes a private hall when they are rented together. Door-swings, including screen doors, must be considered to permit access for utility beds. One motor hotel is so planned that adjacent rental units, with such a joint entry, may be converted to three-room housekeeping apartments in times of changing business (due to depression or housing shortage).

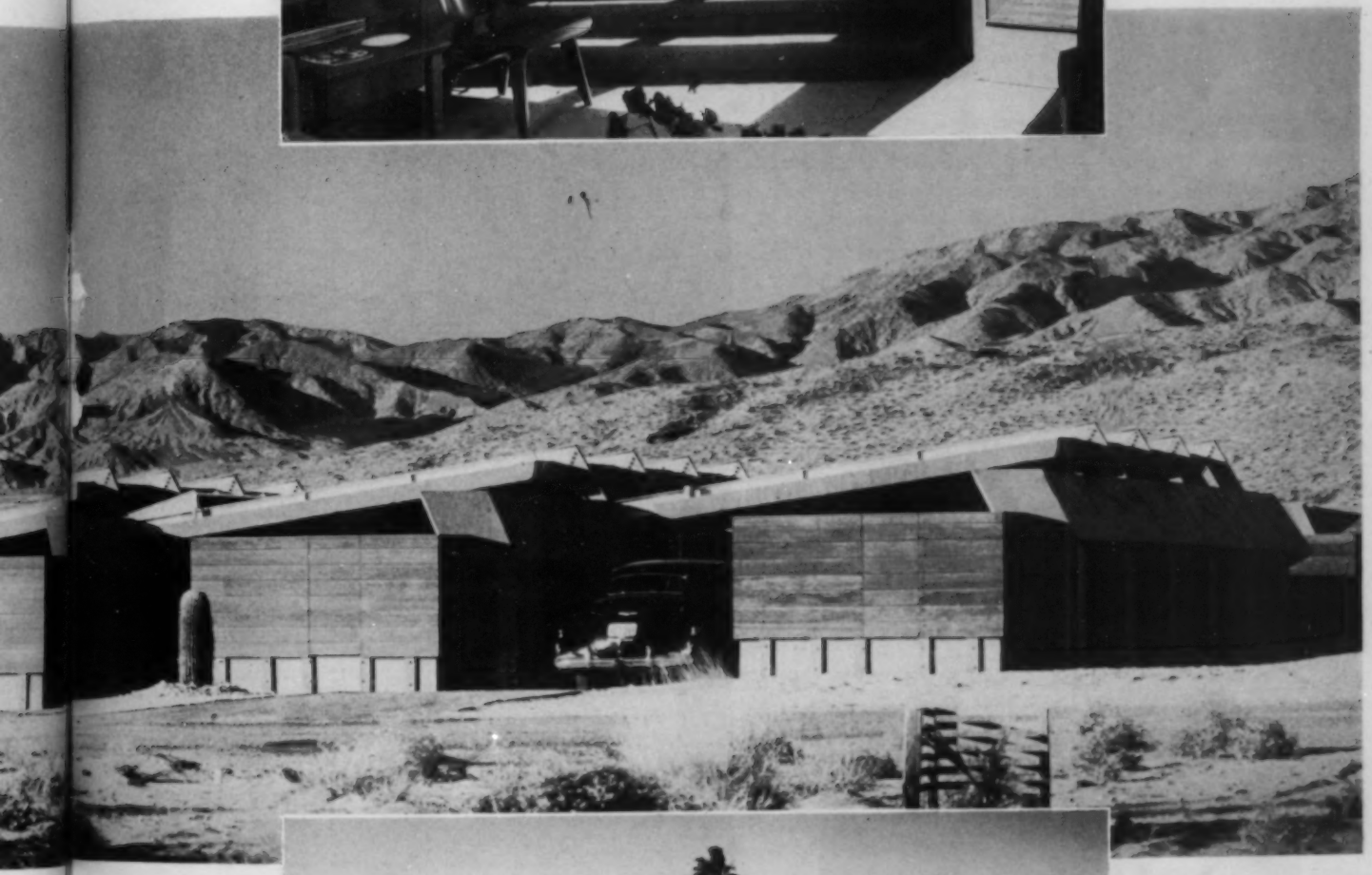
Acceptable double-room sizes range from 14 by 14 to 16 by 18 ft. These are considerably larger than city hotel double rooms and give the motor court another selling point.

Housekeeping is easier and quicker if beds touch walls at heads only and if radiation is recessed.

***Closets:*** Since 90–95 per cent of business is one-night, some new courts are installing inconspicuous hookstrips and dispensing with closets, or leaving off closet doors, not only to save money but to minimize tendency to leave articles in closed closets. Standard carpenter construction of closets with full door frame, door and trim begins to look more and more ridiculous. Very simple and inexpensive metal sliding doors are available which make full closet width accessible (half at a time). "Storagewall" treatment between rental units will not be satisfactory from sound reduction standpoint.

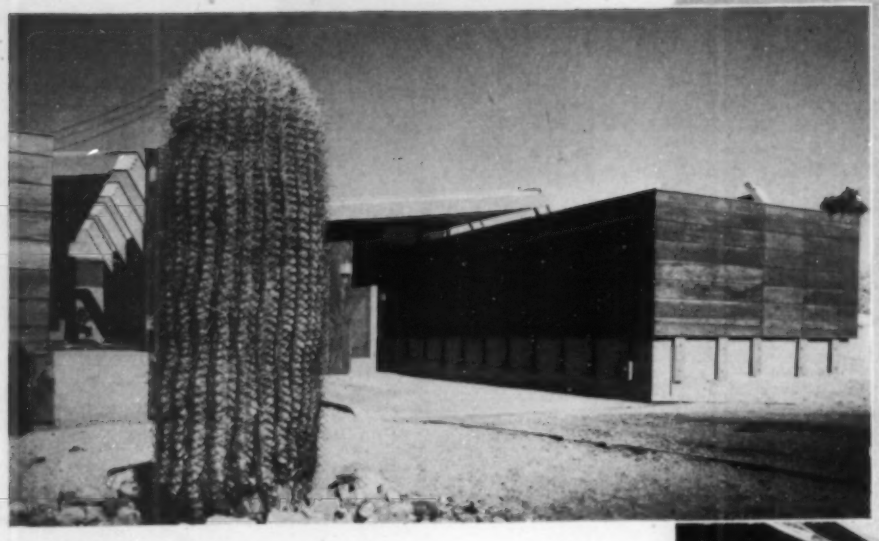
*Contentment House, at Bubbling Well, Desert Hot Springs, Calif. (John Lautner, Archt.), is another motel-resort-cottage group. Each motor-apartment has a private garden, is protected from the surrounding desert, and has a complete kitchen. For relaxation there are hot and cold mineral baths; Palm Springs is six miles away*

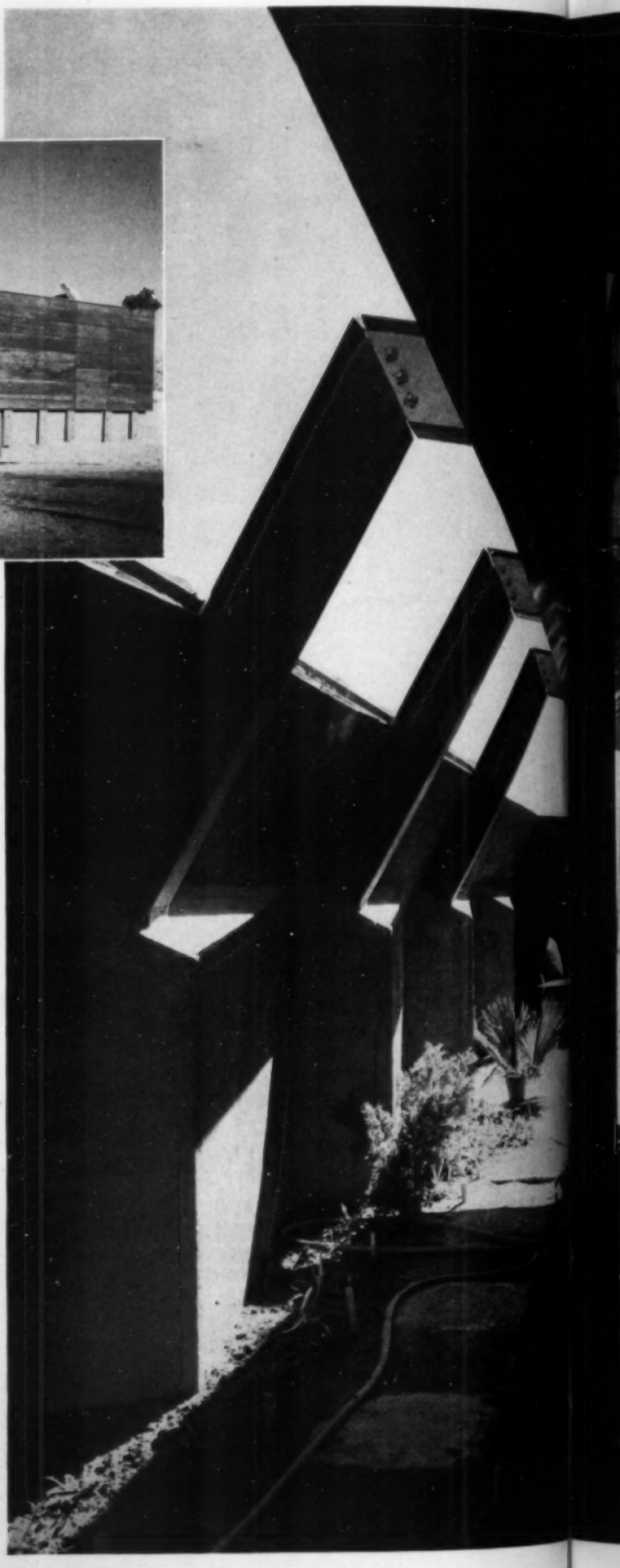




Julius Shulman

# MOTELS





*Contentment House: above, exterior of typical apartment, completely furnished, with car parking space alongside; below, interior, kitchen at far end; right, looking toward an apartment's private terrace*

Julius Shulman

***Windows:*** Metal casements seem to be preferred, with aluminum recommended to save painting (avoid flimsy sections). Projected sash and glass block panels with casement vents have also been used. Projected sash may give protection from weather and prowlers. Glass block affords protection, privacy, insulation, light distribution and reduces dust infiltration. Fixed glass (double-glazed where required), with screened louvers which can be shut, make a good arrangement where glass is accessible for washing outside. At least one set of louvers in each room should be easily opened from inside for fire escape hatchway.

One motor court problem when there is insufficient shelter from eaves, window hoods or porches, is the closing of rental unit windows in event of a sudden storm. Some method of closing from outside is desirable to avoid having to run in and out of every room.

Slate window stools make an attractive, easily cleaned, alcohol- and cigarette-proof detail. Screens are a must. Aluminum or other non-ferrous metal will save painting. Venetian blinds, with or without draperies, are considered essential for privacy and maximum ventilation; most recent courts have metal blinds. Venetian blinds are always difficult to clean and absorb and re-radiate solar heat inside the room, but there is at present no inexpensive substitute for the light control, privacy and ventilation they provide.

Awnings of light metal, with overlapping members spaced to permit better ventilation, are found in some courts. There is a tendency to paint alternate strips contrasting colors which makes a pattern of stripes too bold for many facade designs.

***Doors:*** Screen doors may also be aluminum to save painting.

Keying of locks for various classes of entry is important:

| | |
|---|---|
| *Manager:* | Grand Master Key |
| *Maintenance:* | Master key for all storage, shops, padlocks, slop sink closets. |
| *Maids:* | Master key for all rental units (keyed different from closets and garage doors) in each one-maid area with local linen closet subject to that master key and manager's Grand Master only. Maids' keys to be turned in each day. |
| *Guests:* | Rental units, closets and garage doors keyed alike. |
| *Restaurant and Service Station:* | On individual keys subject to manager's Grand Master only. (May be run as concessions.) |

Oversize key tags should have post office box number rather than name and address.

When garages are provided, a door directly into the bedroom is convenient for luggage handling. Check insurance regulations. Some plans have door near rear of car, or to entrance porch or terrace. Overhead doors are found in most motor court garages.

# MOTELS

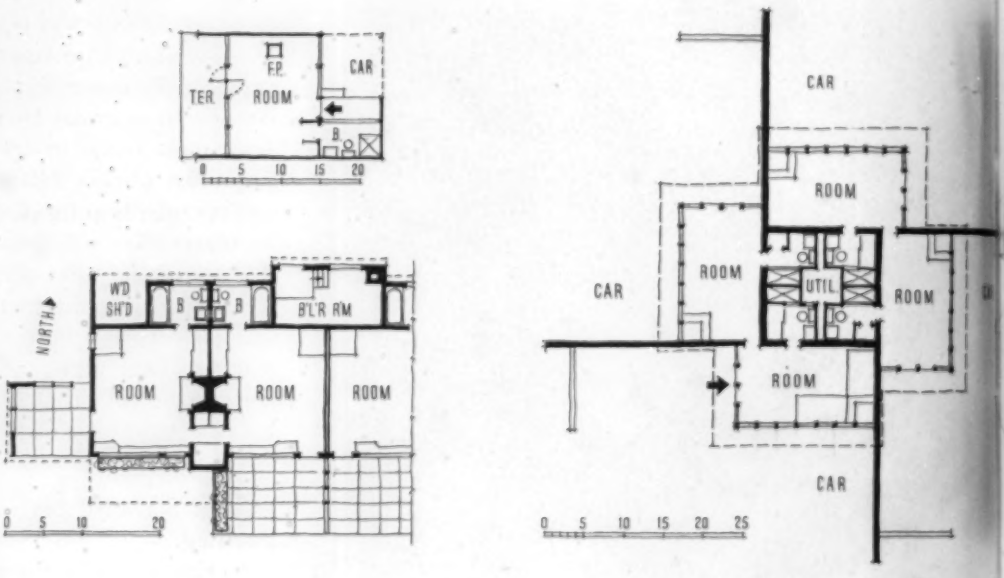
***Porches, terraces:*** Some place to sit outdoors, with or without privacy, is appreciated by average motor-tourist. The building often has a continuous porch which affords circulation protected from weather for guests and maids. Some of the quite old examples link buildings by covered passages as well. Porches need not be wide. Six feet will permit passing behind furniture. Avoid wooden porch floors. Wear and repainting will make them more expensive eventually than more durable terrace materials.

***Ceilings:*** Some examples have acoustic board ceilings which add somewhat to thermal insulation. Reduction of sound at source by acoustic absorption is first line of defense against noise.

***Trim:*** Asphalt tile cove base is neat, durable and requires no paint. Narrow, flush metal door and window trim reduces maintenance and gives desirable simplicity. Door jamb trim should project far enough to receive molded base.

***Colors:*** Variegated floors will show wear and dust less than plain colors. Tesselated patterns of quietly contrasting colors are found most practical. Wall colors should be selected to balance daylight effects. Rooms without sun may be made more cheerful by using warmer hues which would be too hot for sunny rooms.

Doors and trim in hotels and courts are often stained quite dark to avoid showing hand marks. This makes them "jump out" of a light wall and clutters up the room visually. Wood grain in itself (even if light) will reduce effect of hand marks more than paint. To avoid disappointments, room color schemes should not be established until available stock furniture and venetian blind finishes are reviewed and a selection is made.




*Plan types; top, single unit, prefabricated, The Inn, Bethlehem, N. H. (Dan Kiley, Archt.); below, double unit for use alone or as part of a 4-unit, Lovett's Cottages, Franconia, N. H.; right, 4 rooms around central core, Saltboxes, Yarmouth, Mass. (David Fried, architect for both)*

## MATERIALS, FINISHES, COLORS

***Floors:*** Asphalt tile is a favorite in newer installations. Some installations with radiant heat in floor slabs have had difficulty with indentation when temperatures overrun desirable limits. Vibrated concrete tiles about 18 in. square with integral color make a handsome, durable floor. Project floor area must be large to justify fabrication. Many recent motor courts and motor hotels use wall-to-wall carpet, often with small overall pattern to minimize accidental spotting. Wall-to-wall carpets are much easier to maintain and less hazardous than rugs. Finish floor beneath may be less expensive. Preferred installation of carpet shows narrow peripheral strip of floor and carpet is not tacked down.

***Walls:*** Rough plaster, painted with a non-gloss washable paint, is most practical and inexpensive. Attempts to simulate paneling or board walls always look cheap and are out of scale in these necessarily small rooms.

## EQUIPMENT

***Furniture and furnishings:*** The majority of new and recently decorated courts have standard flush-metal hotel furniture of excellent quality with best grade mattresses and springs. This kind of equipment, complete, will cost approximately $600.00 per double room, including carpet. Some courts are using the dolly or Hollywood type of bed with no footboard. These have large casters to facilitate housekeeping. All furniture should have rustproof glides.

Extra bed capacity may be provided by sofa beds or

by folding utility beds (Rollaways) which jack-knife the mattress vertically and can be rolled around easily on 3-in. rubber casters. Frames take regular twin-bed size mattresses 3 ft 3 in. and are usually supplied with a less expensive grade since use is not so continuous and durability is not critical.

Many courts furnish full size dressers with several drawers which are never opened by guests who stay only one night. There is some feeling that a psychologically homelike effect is achieved in this way. A combination vanity-desk with two drawers just large enough to hold an extra pair of blankets makes much more sense. The same functions may be provided by simple built-in vanity-desk shelf and cabinet or open shelves (easily checked by maid). Some operators prefer not to leave extra blankets in rooms.

Maynard Parker

Robert Cleveland

*Typical guest accommodations: left, Tucson Biltmore (Arthur T. Brown, Archt.); right, Santa Ynez Inn, Los Angeles (Alfred Gilman, Archt.)*

No stock furniture finishes will withstand everything — the best available for general service will not resist acetone-type nail-polish removers. Many courts add plate-glass tops. If these are supplied locally, be sure to specify edges ground and top beveled — grinding alone leaves a sharp arris.

Two luggage racks should be provided for a double room and they should have a rear curb of some sort as well as bumpers or projecting rear legs to hold luggage and rack away from wall or foot of bed. Stock chairs are now available designed so that they will not mar walls (rear legs project beyond line of back).

Typical double room should provide: 2 double beds, 1 night table, 1 combination vanity-desk with mirror, 2 luggage racks (one can be used as vanity bench), 1 arm chair (2 better), 1 straight chair, 2 lamps, 1 waste basket, regional maps on wall.

***Lighting:*** If wall outlets are wired to switch from doorway, ceiling light may be omitted. One lamp on night table and one on desk (shared by arm chair) will usually be sufficient. If there are two arm chairs add one floor lamp.

***Bathrooms:*** All-tile bathrooms (about $400 for tilework) are required for top grading by the better associations because of superior maintenance. Large stall-type showers with built-in wing wall obviating need for curtain are also preferred. This could be provided by carefully detailed screen of obscure corrugated glass. Points to watch: support, free edge, transition from corrugations to base. A veteran traveler commented recently on need for some method of quickly heating shower stall floors in winter-time in rental units. The dense shower floor never heats up unless a wasteful amount of hot water (if available) is run on it. This steams up the whole bathroom.

***Carports or garages:*** Ultra-violet rays of sunlight, condensation of dew, evaporation of rain, freezing and thawing of snow and ice, spotting by birds, trees and insects, and salt atmosphere are all harmful to automobile finishes. These destructive elements indicate the desirability of keeping cars in closed garages. But the motor court patron is a transient; the garage is by no means a necessity for a motor court; unless the climate is extreme, carports or open parking will be acceptable. A higher rating, however, will be granted by associations for garages.

When carports are provided at the ends of grouped rental units, the transition to the next building may require special detailing, particularly if there is variation in site grades. Doubling up supports is awkward and such central posts are subject to battering by inaccurate drivers. It is much simpler to forget about having a clean, repetitive unit building, and frankly design a bridged shelter between the two buildings.

There is no need to plaster soffits of carports unless it is felt that the additional fire resistance is essential.

# MOTELS

## CONSTRUCTION NOTES

***Foundations:*** Dense concrete block on poured footings make satisfactory foundations for these predominantly one-story structures.

***Walls:*** 8-in. cinder blocks with or without plaster and/or stucco and with or without furring, depending on climate, are used in majority of better jobs. A number of reliable block paints are available which apparently do a good job of waterproofing unplastered block. Integrally-colored concrete brick units, brick backed up with 4-in. cinder block, brick veneer and frame are also used.

***Floors:*** Slabs on grade with asphalt tile finish are very frequently found.

***Partitions:*** 4- or 6-in. cinder block with or without plaster (much better sound reduction with plaster but inexpensive, attractive and easily maintained texture without).

***Ceilings:*** Gypsum board, acoustic board or tile are common. Natural finish flush wood boards can give pleasant relief from white ceilings. Painted wood plank roofs with exposed beams (mill construction) are used in some "ranch-type" structures.

***Sound Control:*** Planning with entries, closets and baths between rental units is common. One sound-insulation job often neglected is between backed-up medicine cabinets.

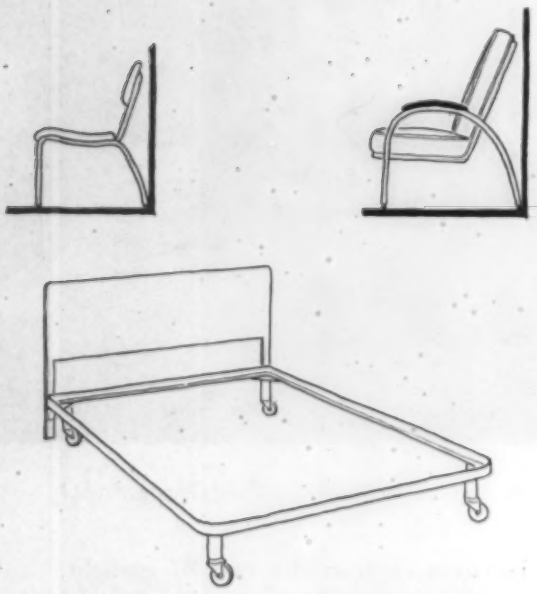
## WEATHER CONSIDERATIONS

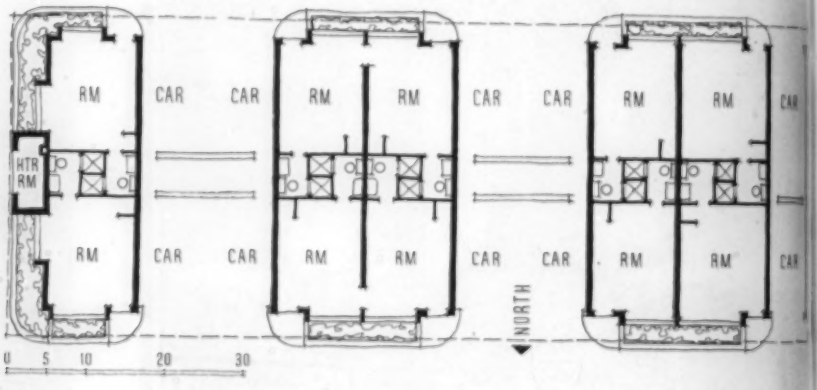
***Orientation:*** Studied location and area of fenestration, provision of calculated hoods and screens for sun control, and consideration of prevailing seasonal winds can make considerable difference in heat load and summer and/or winter comfort. Architects cannot afford to be unfamiliar with latest developments in this field which has a constantly growing documentation.

***Heating:*** An increasing use of radiant panel heating is noted, with source in floor slab. This location is not considered ideal by many heating engineers, who prefer ceiling panels. Time lag is much longer in floor (heating and cooling off) and floor finishes are sometimes not appropriate (carpet, softening materials). Many motor courts are located in natural gas areas and use individual gas-burning units. These, when unvented, have given much trouble, ranging from excessive condensation to fatalities. Effective new vented units are available which heat room without exposed flame. Radiant baseboard heating is becoming more popular.

***Ventilation:*** Planning for cross-ventilation or "right-angle ventilation" is usual in warmer climates and recognized in motor court publicity as a selling point which the city hotel can offer to only a few guests. Electric fans mounted on a high wall bracket are effective, and out of the way of children and pets.

***Air conditioning:*** Southern and Southwestern courts and motor hotels are often 100 per cent air conditioned and could not hold their business without this feature.



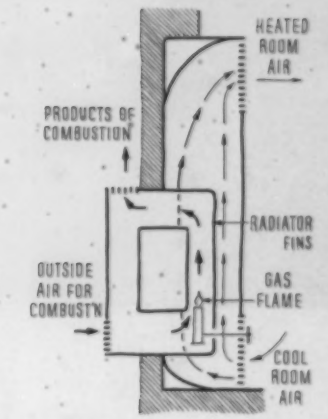



*Left, satisfactory types of standard furniture: chairs with rear legs projecting to prevent marred walls, simple metal "dolly" bed. Plan above: Motel Pam, near Columbus, Ohio (Tibbals-Crumley-Musson, Archts.), essentially a double-unit scheme with variations. Utility core down center is lighted by clerestory. Split heating (part radiant, part radiators) is designed to prevent frozen plumbing in unrented units in winter*

One extensive court in a Middle Atlantic state, with forced hot-water heating pipes run underground in tile (24 in. minimum depth) from heating plant to individual cottages and to restaurant unit-heaters, discovered that, in summertime, water in the pipes was 60° and gave considerable cooling effect when circulated through the unit-heaters in dining room.

***Rainfall:*** Driveway, parking and general site drainage is extremely important since guests enter rooms directly from outdoors and room maintenance work can be tripled by muddy shoes. There is also a psychologically bad effect in driving into a motor court on a rainy evening and finding pools of water everywhere.

***Snow removal:*** If project is in a snow region, and is extensive, a Jeep with 5- or 6-ft-wide snowplow attachment (standard accessory available in either width) will be invaluable.




*Standard type of unit heater for motels burns piped or bottled gas, must be on outside wall; combustion air is separate from room air*

Joyce Studio

Joyce Studio

*Above, two views of Motel Pam showing covered car parking, continuous roof. Right, cars parked at door but not under roof, George Washington Motor Court, Fredericksburg, Va. (R. R. Sollenberg, Designer). Lower right, individual carports, but units so close together that a common roof (see Motel Pam above) would seem more sensible*

## PROMOTIONAL FEATURES

As hotels have done before them, motor courts now compete with each other (and with hotels) by offering many special amenities and services. Some of these are quite small gadgets but are helpful and remembered by guests. Following are typical items:

Telephone or intercom with switchboard
Room radios (coin-operated type is resented by some guests)
Electric fans
Ironing board, outlet (note current)
Razor outlet
Individual small refrigerators (wall type)
Bottle opener
Shoe cleaner
Flyswatter
Touring information: maps and guides

Pawley

MOTELS

Robert Cleveland

Gift shop
Auto service and filling station
Laundry service
Diaper service
Valet
Ice service (cube maker or bulk cube box)
Soft drink vending machine
Free cool drink on arrival, free morning coffee

***Signs and advertising:*** The following media should have design study:
Highway signs; entrance sign(s); vacancy and no-vacancy signs (note particularly problem of association emblems); directional signs on project; regional character items.

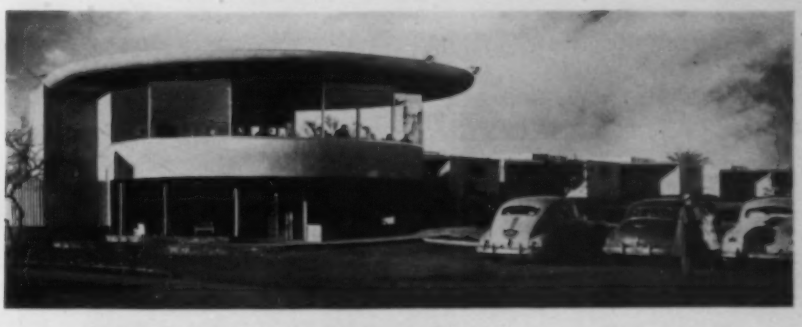
***Recreation and entertainment:*** In general, recreation areas should not be near enough to rental units to disturb sleep. Since they are promotional in nature it is good to have them visible from highway; but safety must also be considered.

Playground equipment
Badminton
Tennis
Shuffleboard
Golf (putting course)
Swimming pool
Skating
Lounge (fireplace, magazines, radio, television)
Game room
Ping pong or deck tennis

***Pets:*** While not strictly promotional, management policy toward pets is of definite importance to guests traveling with animals. Some operators rent only certain units to pet-owners (to be able to reassure subsequent guests with allergies, etc., that *their* quarters have not been so occupied) — some merely ask for cooperation indoors and put up signs about the shrubbery. Others flatly refuse to rent to pet-owners, advertise the fact and save something on maintenance at the cost of turning away such business. Some resort hotels provide kennels.

## NOTES ON FOOD OPERATIONS

Detailed data on roadside restaurants is outside the scope of this study but references on the subject are



Maynard Parker

Julius Shulman

*Such facilities as restaurants and service stations are not considered satisfactory adjuncts of the average motel, except as promotional items. However, just to prove the rule, in quite a few cases this type of accommodation has been found exceptionally profitable. In many instances, climate, locale, custom, or a special talent has been exploited. On the facing page are shown five dining areas in Santa Ynez Inn near Los Angeles, one of them a pool-side terrace (Alfred Gilman, Archt.). The four photos above, of the Tucson Biltmore, Tucson, Ariz. (Arthur T. Brown, Archt.), show the semi-circular dining room elevated above the central mall and swimming pool, with the 4-unit cottages, much like those shown previously in plan, in the background. Photo at left, lounge, Palm Springs Biltmore, Palm Springs, Calif. (Frederick Monhoff, Archt.)*

# MOTELS

given in the bibliography. It is agreed by many operators that kitchenettes are not desirable. It is extremely difficult to maintain sanitary standards with transient use and the extra attraction for vermin is just one more problem. Some courts have facilities to provide travelers with breakfast; a coffee room or counter is sufficient. Location near existing dining facilities is one answer, but if project is isolated, provision of full restaurant service becomes urgent. No one wants to get back in his car after driving 300–400 miles to look for a place to eat, after finding a place to sleep. The inconvenience will be remembered.

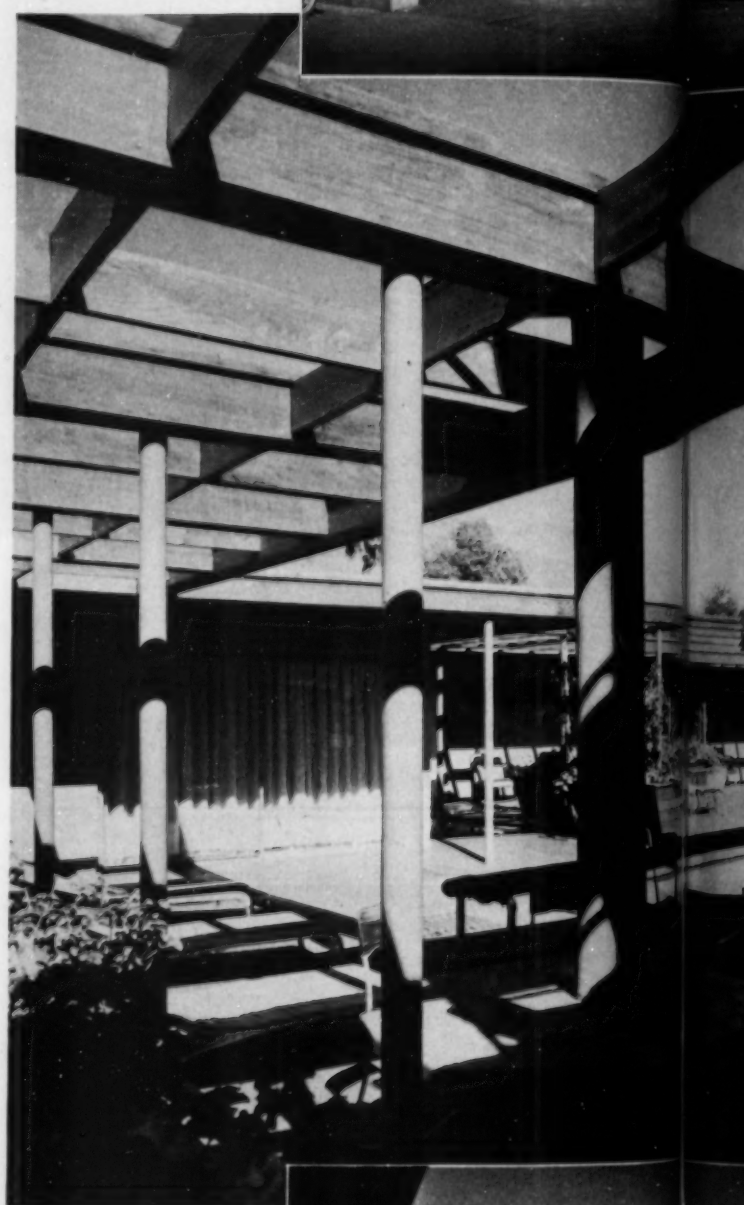
### *ASSOCIATIONS*

Of the many organizations whose insignia and guidebooks indicate superior motel accommodations, two are discussed here; others are listed in the bibliography.

***American Automobile Association*** has trained field men covering all main highways in North America. Their motel reports, analyzed on standard forms, are based on five considerations: general appearance, atmosphere, equipment, maintenance, cleanliness. The A.A.A. pamphlet, *Affiliation Requirements for Motor Courts*, tells standards to be met for listing in A.A.A.'s *Accommodations Directory*.

***Quality Courts United, Inc.***, an operators' association, sets superior standards for industry protection. It has 128 members in Eastern seaboard states, is ten years old, requires applicants to fill out detailed *Analysis of Facilities* grading sheets. These, covering planning, landscaping, construction and equipment as well as housekeeping, etc., are checked, and acceptance further depends upon favorable action by the Board of Directors.

Julius Shulman



## BIBLIOGRAPHY

| KEY | | | |
|---|---|---|---|
| b | bibliography | m | maps |
| d | details, diagrams | p | plans |
| f | forms | s | sketches |
| g | graphs, charts | t | tables |
| | | v | photos |

### BOOKS, PAMPHLETS


1. American Hotel Assn. Public Relations Committee. *How to Sell the Motor Traveler.* A.H.A., New York, 1948. 55pps.

2. *Architectural Record. Time-Saver Standards.* F. W. Dodge Corp., New York, 1st ed., 1946.

| | |
|---|---|
| Residential furniture | pp. 98–99, 110–111 |
| Bathrooms | 133–140 |
| Closets | 141–154 |
| Garages | 155–156 |
| Hotel bedrooms | 169–173 |
| Restaurants, bars | 176–184 |


(*Continued on page 190*)

*Pepper Tree Inn, Palm Springs, Calif. (Stewart Williams, Archt.), is, again, almost a resort hotel for motorists rather than a place for a tourist's overnight stop. Partly two-storied, its one-story portion provides access to guests' rooms by means of a roofed walk, and encircles a courtyard and swimming pool*

# POTENTIALITIES OF PLASTICS IN BUILDING

By Albert G. H. Dietz*

SOME years ago ARCHITECTURAL RECORD observed that of all the materials that can go into a building none is more intriguing — or baffling — to the average architectural designer than plastics. Plastics have become still more complex, still more baffling, and still more intriguing.

Much of the confusion concerning plastics seems to arise from a failure to recognize that the term does not relate to a single material but to many materials. Within their own domain, plastics possess at least as broad a range of properties as metals, and are capable of at least as great a diversity of compositions. Much more than metals, they are commonly combined with other materials like wood, paper, fabrics and fibers to provide still more diverse properties. Frequently it is difficult to say whether the finished article is a plastic modified by another material or vice versa. Often the combination possesses unique properties which could not be supplied by either constituent by itself. Finally, the presence of the plastic may be so completely hidden, as in adhesives and coatings, that it comes as a surprise to realize that the plastic is there and may, in fact, supply the essential ingredient that makes the application possible at all.

In this article the principal types will be briefly summarized together with the principal methods of manufacture. Some of the newer materials and techniques will then be discussed to show the directions in which developments are proceeding and how they may be applied in buildings.

Forest Products Labs.

*Floors, walls and roof of the Acorn house (shown being unfolded and in finished form on opposite page) are lightweight sandwich construction. Sandwiches are cross-corrugated paper, impregnated with plastic resin, plastic-bonded to plywood*

## *Classification*

Most of the plastics can be classified into several fairly well-defined categories, although a certain amount of overlapping exists.

It is convenient to classify them into two principal categories, usually called thermoplastic and thermosetting, based upon their reaction to heat. The thermoplastics soften and become plastic upon heating, and harden upon cooling. They will do so any number of times. The thermosetting plastics or thermosets, when first heated, soften and become plastic, but upon further heating become hard and will not soften again even if more heat is applied. The hardening or "curing" or "setting" reaction is therefore irreversible. Some thermosets seemingly depart from this rule because they harden rather completely at one temperature, but soften partially at still higher temperatures. This softening, however, is not complete because the materials, if deformed at these temperatures and cooled and hardened in the deformed shape, tend to revert to their original shapes if heated again.

The more important chemical types are listed below. Many others could be added to this list. Only those of apparent interest in building have been included.

*Thermosetting Resins*

Phenol formaldehyde and related resins
Urea formaldehyde
Melamine formaldehyde
Alkyds
Polyesters
Silicones

*Thermoplastic Resins*

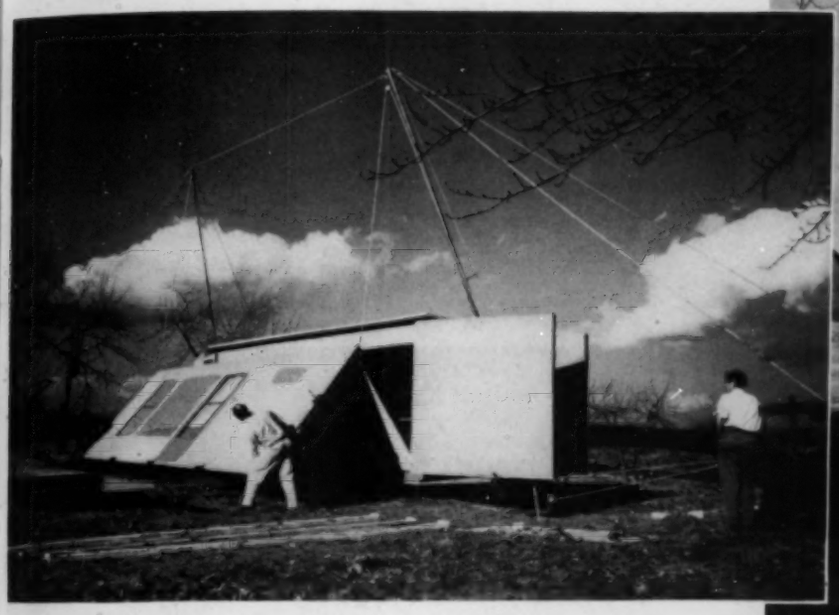
Acrylics and copolymers
Polyamides
Polyethylene
Polystyrene and copolymers
Polyvinyl chloride and copolymers
Polyvinyl butyral
Polyvinylidene chloride and copolymers

*Cellulosics*

Cellulose acetate
Cellulose acetate-butyrate
Cellulose nitrate
Cellulose propionate
Ethyl cellulose
Regenerated cellulose
(often not considered a plastic)

Many of these are modified by the inclusion of fillers, plasticizers, colors, and stabilizers. The phenolics are modified by fillers such as wood flour for general purposes; asbestos for heat resistance; mica for electrical properties; and chopped fabric, chopped cords and fibers for increased strength and resistance to impact. Many of the thermoplastics, particularly vinyl chloride and the cellulosics, are drastically modified by the inclusion of plasticizers, which may convert a hard, brittle resin into a soft plastic material.

* *Associate Professor, Department of Building Engineering & Construction, Director Plastics Research Laboratory, Massachusetts Institute of Technology*



Above and right: Ezra Stoller—Pictor

As the foregoing list shows, many materials are copolymers; that is, chemical combinations of two or more types. For example, vinyl chloride and vinyl acetate are commonly copolymerized to provide a soft vinyl by modifying the hard rigid vinyl chloride with the soft vinyl acetate.

### *Fabrication*

Many fabrication methods are used, of which only the most important will be mentioned.

***Compression molding.*** Thermosetting materials are commonly molded in heated molds under high pressure to form the cured finished part. Variants of this are transfer and plunger molding. Thermoplastics may also be compression molded. A great variety of small and large parts is molded by this method, which is in many ways the most versatile of all. Examples are radio cabinets and handles for doors and drawers.

***Injection molding.*** Thermoplastics are commonly molded by forcing the hot, soft material under high pressures into relatively cool molds. The material hardens upon cooling in the mold. Faster cycles are achieved by this method with the thermoplastics than by compression molding. Like compression molding, this is a method used for a great variety of parts, such as polystyrene wall tile and transparent blocks.

***Extrusion.*** Thermoplastics are extruded into continuous profiles like architectural moldings, edging strips, tubing, and the like. The cellulosics and the vinyls lend themselves especially well to this technique. It is also used for extruding coatings, such as vinyls, on wire.

***Casting.*** Certain acrylics, polyesters, and phenols may be cast in simple molds. This may be done by the manufacturers of the basic materials, or some of the polyesters and phenolics may be cast by the final fabricator.

***Machining.*** Many of the plastics, especially in the form of sheets, rods, tubes, and laminates may be machined by sawing, turning, punching, milling and other standard techniques.

***Blow molding.*** Softened thermoplastic sheet may be formed by air, steam or hydraulic pressure.

***Film and Sheet.*** These may be formed on calender rolls, by casting on moving belts, by extrusion or by slicing ("skiving") from solid blocks.

With the foregoing brief resume of the principal types of plastics and fabricating methods, some of the newer, and more significant materials and processes which have found their way into building applications, or promise to do so, will be reviewed. Many others could be included.

### *High Pressure Laminates*

High pressure laminates have been employed for years, on a limited scale, in building applications, but since the end of the war have been used at an accelerating pace in more and more decorative and semi-structural applications. These materials are formed in heated presses under pressures ranging from 1000 to 3000 psi and are therefore called high pressure laminates as compared with

the reinforced plastics or low-pressure laminates in which the forming pressures range from practically zero to a maximum of perhaps 50 psi.

In the high pressure laminates a typical combination of materials consists of a base of several sheets of strong kraft paper impregnated with a phenol-formaldehyde resin. This is overlaid with a sheet of printed paper, a fabric or a thin wood veneer. The overlay is then faced with a sheet of melamine resin. The combination is placed in a heated press and cured into a solid sheet by heat and pressure. The phenolic and melamine resins, being thermosetting, will not soften upon the application of heat, although they will char if heated enough. The transparent melamine face is one of the hardest and most abrasion resistant of the plastics and protects the decorative sheet underneath. It is also immune to solvents, like water and alcohol, to which it is likely to be exposed.

A cigarette-proof variant is made by incorporating a thin sheet of aluminum under the decorative sheet. The aluminum conducts away the heat from a burning cigarette, for example, so fast that the charring temperature of the laminate is not reached.

Laminates such as these are commonly employed as facings and backings on plywood for tables, counters, and many similar applications. Several large-scale installations have been employed in the furniture and paneling of hotels.

### *Reinforced Plastics*

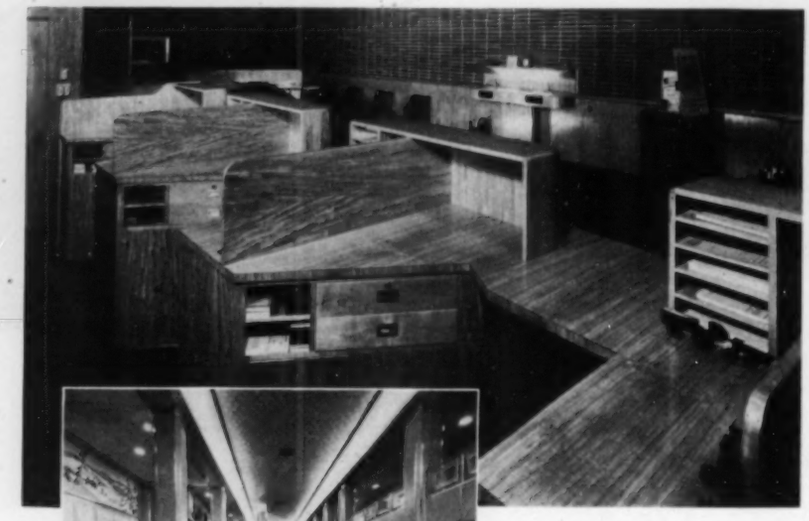
The term "reinforced plastic" has recently come into general use to describe the type of sheet material consisting of resins reinforced with various fibers and filaments. The most commonly employed combination is a polyester resin reinforced with glass fibers in the form either of mats or of woven fabrics.

Fabrication of these materials is simple. The liquid resin and the reinforcing material such as glass mat or fabric are applied over a simple form to the desired thickness and then hardened by the application of moderate heat. Before hardening, the lay-up may be wrapped in a flexible blanket such as a rubber bag, and subjected to air pressures ranging from a few pounds to 25 or 50 psi or, as in the newer techniques and with the newer resins, no pressure may be exerted and no blanket employed. Curing is sometimes carried out in an oven, but it may also be completed in a heated room or chamber. Once the resin has hardened, it does not soften appreciably upon the application of heat. The resulting material is translucent unless pigmented or filled, and may be colored by the inclusion of dyes.

These materials had their inception and trial uses during the war, where they were found especially useful for such applications as housings for air-borne radar. Here they were required to withstand exposure to extremes of temperature and to high-velocity wind and rain. In other applications they were developed for body armor and for boats. Since the war they have found many applications including a rapid expansion in small boats like dinghies and in larger vessels such as naval personnel-carrying craft 25 to 35 ft long. In all of these applications they have proven themselves to be strong, extremely tough, abrasion resistant and durable.

In the building field these materials have so far been employed chiefly in the form of corrugated sheets in conjunction with traditional corrugated sheet materials for the enclosure of aircraft hangars and industrial buildings. Since they are made in standard corrugations and are applied by the same techniques as are employed with standard corrugated materials, they require no special trades.

Formica Co.

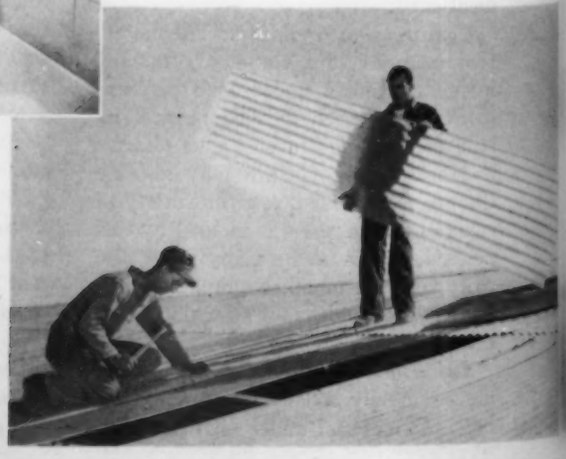


Arborite Co. Ltd.

Formica Co.

*High pressure laminates have come into more extensive decorative and semi-structural uses lately. Thin wood veneers overlayed with transparent plastic were employed in the bank (above) and hotel lobby (left). In the bathroom decorative plastic was used*

Texas Industrial Film Co.



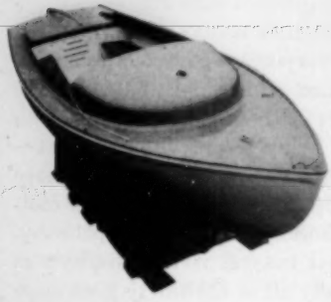
They can be placed anywhere in the roof or wall pattern where light transmission is required. These materials have also been found attractive for interior or exterior decorative and semi-structural treatments where appearance is important.

### *Transparent Rigid Sheet*

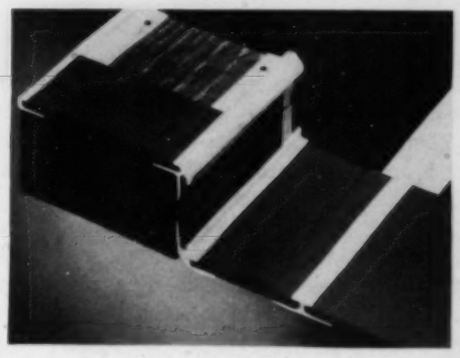
Transparent plastics in sheet form were used to a limited extent in buildings before the war, but wartime requirements accelerated developments in this field now being used in buildings

The acrylics, for example, found application in aircraft of all kinds for windows, blisters, and other parts affording vision. The techniques of vacuum and snapback molding were highly developed for the manufacture of such parts. In vacuum molding a heat-softened sheet of the plastic is clamped over a vacuum pot, drawn into a hemispherical or other concave shape as the air is evacuated from the pot, and allowed to cool and harden in this shape. The sheet may be also drawn down against a mold. In snapback molding the same steps are followed, but a mold of the required shape is placed in the concave blister, after which the plastic sheet is allowed to snap back as the vacuum is released and thus to take the shape of the mold.

Molded acrylic sheet, transparent or colored translucent, is widely used for such items as illuminated signs. Corrugated sheet is employed for sky lighting and wall lighting, large illuminated trough and ceiling lights, and for many decorative and semi-structural applications both indoors and out. Where danger of breakage is severe, the sheet is used in place of glass for glazing, but where scratch-resistance or dimensional stability are important, it is not the equal of glass.



Cape Cod Shipbuilding Co.



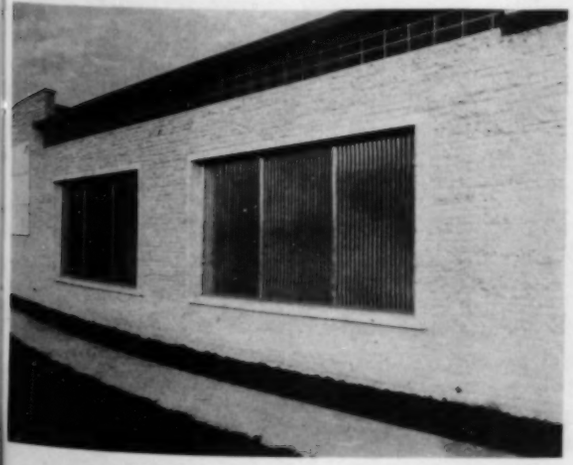
Tennessee Eastman Corp.

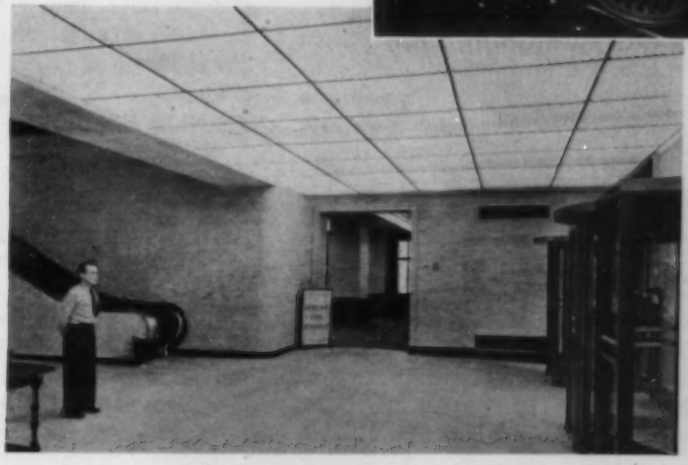
Rohm & Haas Co.

*Reinforced plastics are used in buildings mainly in the form of corrugated sheets for fenestration (directly below and opposite page), and also for interior and exterior decorative uses. Boat hull (above) of this plastic demonstrates fabrication possibilities*

*Above: moldings for covering wallboard seams and holding it in place. Right-hand photos: uses for flat and molded acrylic plastic. "Shell" sign is interior-lighted. Clear panels for press box. Corrugated white translucent panels for luminous ceiling*

Texas Industrial Film Co.





From the decorative standpoint, the ability of the acrylics to pipe light around bends has been utilized to obtain novel lighting effects. Sheet containing surface or internal carving can be edge-lighted for decorative purposes.

The transparent and colored cellulosics, especially cellulose acetate, are similarly employed for decorative and semi-structural purposes, particularly indoors. Their tendency to absorb moisture with consequent deterioration under atmospheric exposure makes them unsuitable for prolonged outdoor exposure. The sheet stock is easily heat-formed into a variety of shapes, and it also lends itself readily to cementing and heat sealing for the formation of joints and seams. For these reasons cellulosic sheets are widely used for packaging of all kinds.

### *Adhesives*

One of the lesser-known but large-scale applications of synthetic resins is in the field of high-strength, high-durability adhesives. In building applications, these adhesives have been employed primarily for bonding wood but, although woodbonding is probably the most important application of these adhesives, they are being actively employed in other fields for the bonding of metal to metal or to wood, and for bonding plastics, glass, and many other materials.

For bonding wood, the principal synthetic resin adhesives are phenol, urea, resorcinol, and melamine-formaldehyde and closely related chemical types. These are all thermosetting adhesives, but the ureas and resorcinols can be formulated with suitable hardeners or catalysts to cure — slowly it is true — at ordinary room temperatures. The phenol and melamine types require elevated temperatures, ranging up to 300 F, to effect a cure. The ureas and resorcinols cure more rapidly at these temperatures.

When properly formulated and cured, the phenols, resorcinols, and melamines all withstand prolonged boiling without delamination, are immune to attack by mildew, and retain their strength upon exposure to atmospheric conditions. The phenols have the advantage on cost and are the standard adhesives for waterproof or exterior grade plywood. The melamines are light-colored or colorless and can therefore be used advantageously with thin, light-colored veneers through which the dark-colored phenols might show and be unsightly. The resorcinols are costly but have the great advantage of curing at ordinary temperatures. They are therefore widely used as assembly adhesives where maximum durability is needed but heat cannot well be applied, as in glued laminated wooden members like ships' keels which are to be exposed to severe conditions. The ureas are less able to withstand extremes of combined high temperature and humidity, but are excellent for applications like glued-up doors for interior use, general assembly gluing, and such items as glued-laminated arches for roofs and other protected locations. They are relatively inexpensive, light-colored, and usable at ordinary temperatures.

### *Sandwiches*

The structural sandwich consisting of hard, dense faces and insulating cores has been employed in various forms in the building field for a number of years. With the advent of the synthetic resins as adhesives and impregnants, considerable experimentation and development have taken place to evolve new, lightweight sandwiches for building purposes. Cores, for example, have been developed consisting of paper impregnated with a phenol-formaldehyde resin and formed into honeycomb-shaped cellular slabs, or into crossed-corrugated structures suitable for use between facings of resin-bonded plywood, paper-laminate, or metal. The adhesives used to bond together the honeycomb or corrugated sections are based upon resins such as phenol, urea, and resorcinol-formaldehyde, and are bonded to the facings with the same adhesives.

In one experimental house built with sandwiches of crossed-corrugated cores with plywood facings, the average weight of floor, wall, and roof construction is 2½ lb per square foot. The entire one-story, 800 sq-ft house including mechanical equipment and steel supporting beams (no foundation; the house rests on piers) weighs 6½ tons. Because it is of such light weight, and because of the strength and stiffness of the sandwich construction, the sections of the house can all be hinged together, folded, loaded on a truck, unloaded, unfolded, and erected with the assistance of light gin poles.

### *Flexible Film and Sheet*

Within the past ten years flexible plastic films have grown from a relatively small part of the industry to a position of leadership in the annual tonnage figures. Two materials which developed largely during the war years were polyvinyl chloride and polyethylene. Together with cellulose acetate, the other cellulose derivatives, polyvinylidene chloride, and rubber derivatives, they provide films possessing a wide range of properties. All of these films are widely used in packaging of all kinds.

The vinyls are used in a great diversity of items such as raincoats, collapsible backyard wading pools, and beach accessories. Polyethylene is outstanding in its inertness to solvents at ordinary temperatures, and in its ability to remain flexible at low temperatures. The process of high-frequency electronic welding has grown fast in conjunction with the vinyl and vinylidene chlorides.

In building applications the vinyl and vinylidene chlorides, either by themselves, copolymerized together, or copolymerized with other vinyls like vinyl acetate, can be made into flexible film and sheet for shower curtains, upholstery and flooring. For these purposes advantage is taken of their toughness and resistance to wear and staining.

### *Coated Fabrics and Papers*

Fabrics coated with cellulose nitrate have long been used for upholstery and similar purposes. Today fabrics are being coated with vinyl and vinylidene chlorides or their copolymers, and with another vinyl — polyvinyl butyral — whose great toughness and soft drape make it particularly useful for the coating of fabrics to be used for upholstery. Polyvinyl butyral is the interlayer in practically all of the safety glass made today. One form of vinyl sheet is heat-quilted through a thin batting material to a back-up sheet.

The stain and scuff-resistant wallpapers which have become available within the past few years are in most instances coated with a thin film of cellulose acetate or vinyl chloride.

### *Coatings*

Plastics are increasingly taking their place in coatings, either entirely by themselves or formulated with older natural materials. This field is too complex to be completely covered here, so only a few highlights can be given.

The alkyd resins are widely employed as the base or vehicle for coatings, especially on metal. They may be used entirely by themselves, may be mixed with natural materials like linseed or other drying oils, or may be compounded with other synthetic resins like urea and melamine formaldehyde which are often introduced, singly or in combination, to provide increased hardness. Depending upon the mixture, the resulting product may harden or "dry" at ordinary temperatures, or may require baking. These materials are widely used on home appliances like refrigerators and stoves, and as finishes for automobiles.

Phenol-formaldehyde and related resins are widely compounded with natural or plastics-based drying oils to provide air-drying or baking paints, varnishes, lacquers, and enamels.

### *Plastic-based Fabrics and Filaments*

This is such a large and growing field that only a few of the highlights can be mentioned.

Nylon and rayon are familiar to architects as fibers and fabrics based upon plastics. Nylon is a polyamide, while the various rayons are either regenerated cellulose or cellulose acetate. Recently, the term "estron" has been introduced to refer specifically to cellulose acetate. Fibers and fabrics based upon vinyl resins are also produced in large volume and are used, among other things, for upholstery.

Of particular interest in building is the rapidly growing use of polyvinylidene chloride fly screens to take the place of metals. Their non-corroding and non-staining characteristics make them particularly attractive. The same material made into monofilaments and woven into fabrics is widely used because of its toughness, wear resistance, and resistance to staining for automobile seat covers and for upholstery.

Among the newer fibers — of which there are many — may be mentioned regenerated cellulose which has been oriented by drawing while being formed so as to align the molecules in the direction of the filament. Like nylon, this provides a filament of great strength.

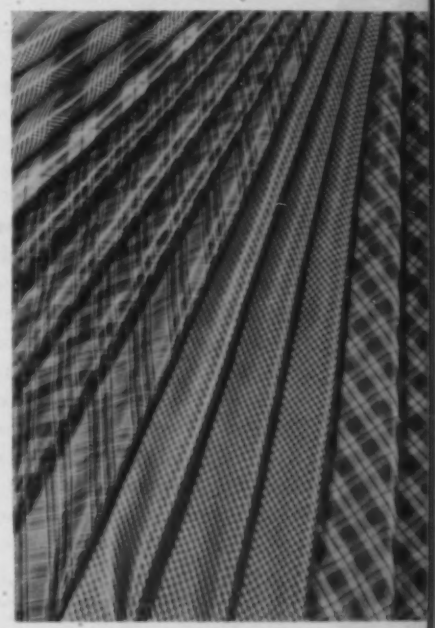
### *Silicones, Fluorocarbons*

The silicones, based upon silicon instead of carbon, possess extreme durability, excellent electrical properties, and high moisture repellence. Silicones are made in the form of soft rubbery materials, oils, and greases, and impregnating varnishes, all of which retain their properties under extremes of temperature. Electric motors insulated with silicone and glass cloth have been run continuously at temperatures of 350 F or higher and 90 to 100 per cent relative humidity. In the building field the rubbers have been used to a limited extent as gaskets for setting glass. One of the promising applications is a water-repellent treatment for masonry. They are used to make fabrics moisture repellent. The present high cost is a deterrent, but the extreme durability of these materials under all sorts of adverse exposure conditions makes them attractive for building applications.

The fluorocarbons, in whose chemical makeup fluorine or fluorine plus chlorine is substituted for hydrogen, offer another group of extremely durable plastics. The all-fluorine type is resistant to all known solvents except molten alkali metals like sodium. Like the silicones, they are not easily wetted and therefore are moisture repellent. Their electrical properties are outstanding. In finished form they look and feel much like a gray-colored hard parafin. Their high cost has held back building applications, but in the form of packing and gaskets in chemical plants, for example, they have given an excellent account of themselves.

This article has been focused on the trend in plastics and some of the present and possible future uses in building. The entire industry is still developing fast, and the next five to ten years may be expected to bring out new materials, modifications of the old, and further applications.

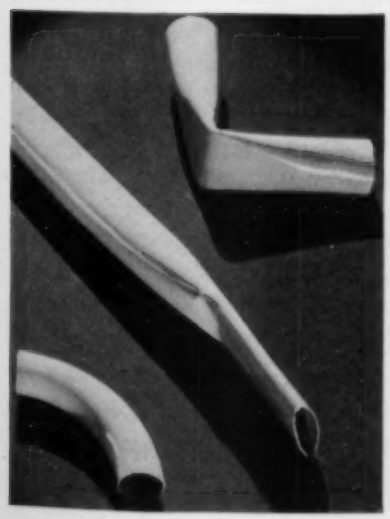
*Plastic-based fabrics are widely used for upholstery because of their toughness, wear and stain resistance. Same plastic forms nonstaining fly screens. Photo below fabrics shows waterproofing quality of silicones. Area in right-hand corner is treated*

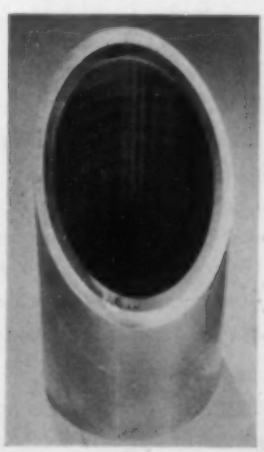


Susquehanna Mills

Wurdack Chemical Co.

Tennessee Eastman Corp.





Dow Chemical Co.

*Steel tubing in photo far left is coated with extruded plastic, claimed chip-proof. Pipe and elbows have been lined with a plastic for corrosion resistance*

# PREVENTING OPERATING ROOM EXPLOSIONS

**New design changes in safe practice recommendations for hospitals**

*By Roy Hudenburg* *

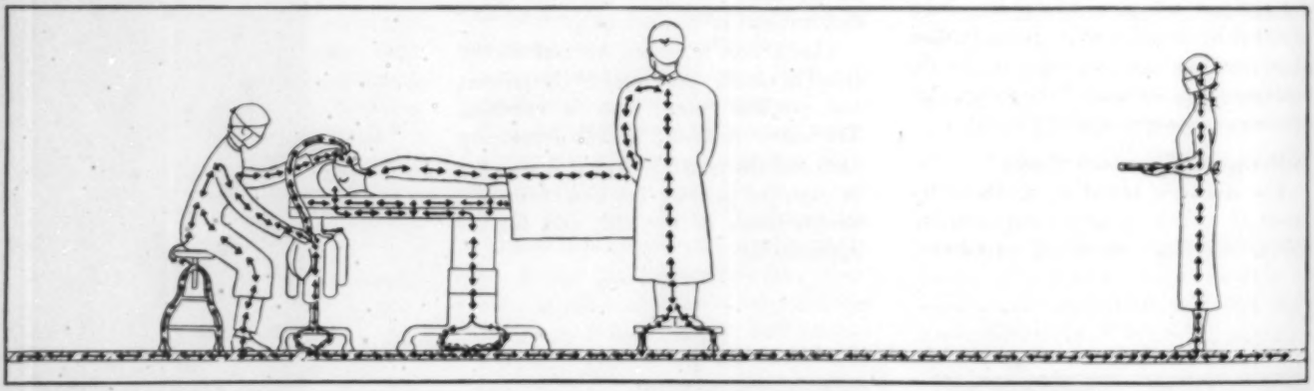
HOSPITAL architects now have a new guide for designing operating rooms so as to minimize fire and explosion hazards. A new set of National Fire Protection Association recommendations for hospital operating rooms replaces a 1944 code that is now considered obsolete.

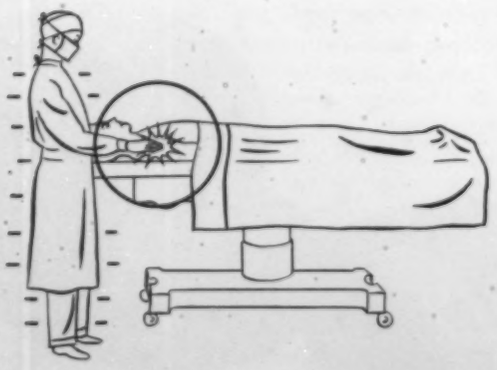
The 1944 code, based on scant data about the extent of explosive mixtures in the operating room, made excessively restrictive requirements for electrical installations. The American Hospital Association's Council on Hospital Planning and Plant Operation felt that these 1944 recommendations were inadequate and worked unnecessary hardships on hospitals. Three years ago it instructed its Safety Committee to work toward a revision that would be more acceptable to hospitals.

The resulting new recommendations affect six major points (1) a new safety range for combustible anesthetics, (2) removal of specific ventilation requirements, (3) requirements for conductive flooring, (4) grounding of personnel and equipment, (5) precautions for anesthesia storage rooms, and (6) use of cautery.

**1. *New Safety Level.*** The new N.F.P.A. Committee on Hospital Operating Rooms based its recommendations on the following considerations, which are printed in the appendix of its newly-adopted standard: "Available data and recent investigations (1948–1949) indicate that, under customary operating procedures, explosive anesthesia mixtures are diluted by air in the operating room to a nonflammable range before reaching a point 2 ft distant from a point

* *Secretary of the American Hospital Association's Council on Hospital Planning and Plant Operation. The author's article as it appears here has been abstracted from "New Recommendations for the Control of Operating Room Hazards," Hospitals, December 1949.*





***Above:***

*Arrows show two-way flow of static electric charges generated in operating rooms. Conductive floor is common connector. Anesthetist is grounded in four ways: (1) through the anesthesia apparatus; (2) through the patient; (3) through his stool and (4) through conductive shoe soles. Anesthesia apparatus and operating table are grounded by drag chains. Patient is grounded through both of these — through the connecting links of conductive rubber tubing of apparatus and conductive rubber pad of table. The surgeon wears conductive shoes, stands on grounded footstool. Nurse wears conductive shoes*

***Left:***

*A hazardous electric spark is the potential danger in an operating room set up with disregard of the new safety principles. The spark may occur when the doctor, who builds up an electric potential, touches the patient or other object in the area containing combustible gas mixtures*

of leak involving the quantities of anesthetics used in anesthesia procedures. However, the liquid character of ether permits its spillage, and ether fumes may collect close to the floor as well as being released from the anesthesia system."

Investigations indicate that the 2-ft measure contains a substantial factor of safety. The committee, however, defined the hazardous zones in anesthetizing locations as extending 5 ft above the floor. This 5-ft level is particularly important in placing permanent electrical installations. Accordingly, electrical outlets, switches and x-ray viewing panels installed below the 5 ft level in hospital operating rooms or other anesthetizing locations must be explosion-proof.

The explosion-proof, ceiling-hung light is no longer required. The requirements set forth in the new recommendations are easily met by standard ceiling-hung surgical lights now on the market.

One change is made in specifications for the ordinary fixture: the ceiling-hung surgical light must have no integral or appended switch unless that switch itself is explosion-proof. Also, no arcing device on the fixture may come within 5 ft of the floor.

Former recommendations stated that the operating room constituted a hazardous area to a height of 7 ft if it was ventilated according to certain specifications. The entire room was considered hazardous if these ventilating specifications were not met. Since it is virtually impossible to keep the modern ceiling-hung surgical light above a 7-ft level, this meant that every such light in the hospital had to be explosion-proof.

Fixed installations above the 5-ft level now need only to meet ordinary provisions of the National Electrical Code. Room switches installed above 5 ft need not be explosion-proof.

The new term "anesthetizing location" replaces the term "operating room" in this standard. It is defined as "any area of a hospital in which it is intended to administer to a patient any combustible anesthetic agent in the course of examination or treatment and shall include operating rooms, delivery rooms, anesthesia rooms and rooms used for preoperative preparation of the patient."

The definition specifically says that corridors serving anesthetizing locations present electrostatic hazards, and suitable precautions should be taken.

The word "serving" should be read as "leading to" or "tributary to." Whenever the corridor actually serves as an anesthetizing location, it becomes subject to all regulations applying to the operating room.

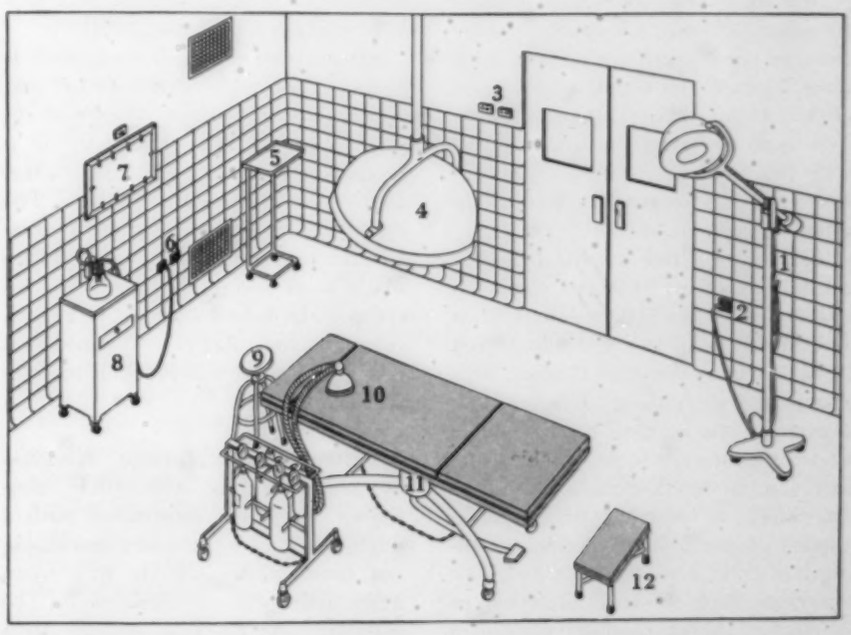
**2. *Removal of Ventilation Requirement.*** Because of the high rate of gas dispersion, the committee felt that general room ventilation has no effect on the concentrations of explosive gases in the limited area around the patient's head and gas machine where these explosive mixtures exist. Accordingly, the committee removed from its mandatory standards any specific requirements for ventilation.

In recommending these safeguards, the committee felt that it is virtually impossible to prevent some accumulation of explosive mixtures and that, therefore, safety must be attained by eliminating all possible sources of ignition, particularly by static.

The recommendations say that high humidity is not sufficiently reliable for complete control of electrostatic sparks.

The committee's vital concern with the problem of static electricity is probably best demonstrated by a quotation from the section of these standards dealing with electrostatic hazards.

"It cannot be too strongly empha-




*Operating rooms under the new standards will include safety devices as illustrated (tiling indicates the 5-ft level). Numbered items are: (1) portable surgical lamp — grounded through conductive rubber casters. (2) explosion-proof outlet — below the 5-ft level. (3) push-button switches — need not be explosion proof since they are above 5-ft level. (4) ceiling-hung operating room light — explosion-proof construction is no longer required except for outlets or switches incorporated into the construction. (5) instrument stand — grounded through conductive-rubber casters. (6) pair of explosive-proof outlets. (7) recessed x-ray view window with electrical connections outside of operating room; toggle switch to operate is above the 5-ft level and need not be explosion proof. (8) suction apparatus — grounded by conductive rubber casters; motor within the cabinet must be explosion proof. (9) anesthestist's stool — grounded through conductive rubber tips; seat must be unpainted, and if a pad is used it must be covered with conductive rubber. (10) anesthesia apparatus — mask and hose of conductive rubber; this unit is grounded by a drag chain but the same purpose would be met if casters were of conductive rubber. (11) operating table — the pad is of conductive rubber; table is grounded to floor by a drag chain. (12) surgeon's metal footstool — has conductive rubber tips, and padding, if used, must be of conductive rubber. The floor must be constructed of conductive materials*

sized," the standard says, "that a partial chain of precaution will generally increase the electrostatic hazard. For example: Conductive flooring may be ineffective unless all personnel wear conductive shoes or other grounding devices and unless all objects in the room are electrically continuous with the floor."

The anesthetizing location must be served with electricity through a transformer that will isolate the circuit from the grounded circuits existing elsewhere in the hospital. Unlike ordinary alternating current hookups, this circuit will not have a grounded side. The requirement is intended, first, to prevent electrical arcs due to insulation failures and, second, to guard against electrical shock due to the failure of insulation on wires.

Hospitals in areas served only by direct current will have a more serious problem. Other means of providing ungrounded circuits are suggested in the recommendations.

**3. *Conductive Floor.*** The electroconductive floor becomes the common connector through which all objects in the room are electrically intercoupled. The intercoupler now in use in some hospitals, which interconnects certain operating room personnel and equipment by the use of wires leading to a resistance unit, is not an approved grounding device under these standards.

Now the entire floor surface in anesthetizing locations, anesthesia storage locations and corridors serving such areas must provide a path of moderate electrical conductivity between all persons and equipment making contact with the floor. Incidentally, this conductive floor need not be connected to a building ground.

The electrical resistance of this floor must be in excess of 25,000 ohms but shall be less than 500,000 ohms when measured between two electrodes placed 3 ft apart *at any point on the floor*. This means that the ordinary terrazzo floor containing brass grids is not acceptable under these standards. Acceptable floors include a terrazzo floor containing acetylene black, a terrazzo-type floor containing magnesium oxychloride, a composition floor, a plastic floor and floor coverings made of such materials as conductive rubber, conductive linoleum and conductive asphalt tile.

As this floor is to be the common link, steps must then be taken to ground equipment and personnel to the floor.

**4. *Grounding of Personnel and Equipment.*** The patient is grounded to the surgical table through a conductive rubber covering on the table pad. The table itself then must be grounded to the floor by either conductive rubber casters or by a drag chain.

The anesthetist and the anesthesia gas machine, of course, are the most important links in this chain of static prevention. The anesthetist has a triple connection to ground. His stool should first be grounded to the floor by either conductive rubber tips or a drag chain and should have an unpainted and uncovered seat.

The second line of grounding for the anesthetist is through the wearing of conductive footwear or other personnel-grounding device. The third line is through the anesthesia gas machine and the patient, which should form one continuous grounded circuit. The gas machine itself should be grounded to the floor. It should be equipped with conductive rubber parts, including the tube leading to the face mask.

All equipment in the room should be of metal and again must be grounded to the floor through conductive rubber tips, conductive casters or drag chains.

Anesthesia explosions happen fast and their causes are difficult to determine in later reconstruction. Yet, inquiries made by the American Hospital Association's Safety Committee seem to indicate, with little room for doubt, that static discharge was the source of ignition in each fatal explosion occurring in 1948.

All portable electrical equipment is required to be explosion-proof and should be equipped with three-wire appliance cords. The third wire is a grounding wire, which must be attached to the outer casing of the appliance. The other end of this cord must be attached to a three-pronged plug designed particularly to fit into an explosion-proof receptacle. In order to prevent an electrical spark, that plug is so designed that it may not be withdrawn while the current is on.

**5. *Anesthesia Storage Rooms.*** Storage rooms for combustible anesthetics should be constructed with a minimum of a 1-hr fire rating and should not communicate directly with operating, delivery or anesthesia rooms. The standards specify that storage areas should consist of two separate rooms, one for combustible anesthetics and the other for oxygen and nitrous oxide.

The storage area should have an electroconductive floor, and electrical installation should be explosion-proof. The area should be ventilated by a gravity system rather than by a mechanical system operated by an electric motor.

**6. *Cautions for Cautery.*** The committee faced a knotty problem in connection with the use of cautery during anesthesia with combustible agents. In cautery a definite possible source of ignition frequently is used near explosive gas mixtures.

It was obvious that varying patient reactions to anesthetics demand that the surgeon have free choice of anesthesia agents. At the same time, it was realized that the surgeon cannot be denied the use of cautery and high frequency electrical equipment when he considers it necessary.

One reason for the lack of acceptance of the 1944 recommendations by many hospitals was the fact that it categorically prohibited the use of cautery despite the surgeon's needs.

Provisions should be made for some ventilation in the hazardous area about the patient's head during the use of cautery. It is suggested that the use of high frequency and electronic equipment in the presence of combustible anesthetic agents be controlled.

A number of additional hazards discussed includes such electronic equipment as amplifiers, recorders, television cameras and x-ray machines.

The new recommendations prohibit the piping of combustible anesthetic agents, which would include such gases as ethylene. Piping of oxygen is permitted, of course, and the standard prescribes regulations for oxygen piping.

Safety Committee recommendations were not adopted in full by the N.F.P.A. committee. Certain electrical requirements are not yet in agreement with recommendations of the Safety Committee, but they represent a compromise.

The N.F.P.A. committee is being continued even though it has brought out these recommendations. As with all recommendations of the N.F.P.A., these are open to later amendment. The committee is to meet again in 1950 to consider any recommendations for changes. At that time, the Safety Committee will once again have an opportunity to present its recommendations.

In the meantime, it seems unlikely that any modifications made will seriously affect the major provisions of these standards. Those who have studied the recommendations in detail, including several hospital architects, believe the standards are sufficiently minimal that hospitals cannot seriously object to early compliance.

# HEATING SYSTEMS FOR HOUSES

## *Convector Baseboard Heating Systems: 1—Typical Layouts*

*By William J. McGuinness*

*Professor of Architectural Engineering*

*Pratt Institute*

AT this writing the use of baseboard convector heating in this form is relatively new. Speedy research is resulting in changes in the units, their ratings, etc. Before completing designs based upon the information contained herein, check with manufacturers.

### *Adaptability to Various Systems*

Baseboard convectors are most frequently used in connection with the series loop circuit and using forced hot water. They can be used successfully in a two pipe forced hot water system or in a conventional one pipe forced hot water system, where they are connected individually like radiators. Another possible use is in two pipe steam systems. They are not adaptable to one pipe steam systems because of the difficulty of steam and condensate passing each other in the small pipes.

### *Series Loop, Forced Hot Water*

The water flows through a series of convector baseboards and back to the boiler by the motive power of a pump. If limited to circuits not exceeding 30,000 to 45,000 Btu per hour heat loss, the temperature of the heating water does not drop greatly. Average temperatures of 200 F and less are used and the temperature drop in the system is usually designed as 20°. A number of such circuits are possible, supplied by a single main, picked up by a single return and adjusted by balancing valves. With this arrangement it is possible to use baseboard series loop circuits in quite large buildings.

### *Comfort*

Like cast iron radiant baseboard, the tube and fin type, discussed here, is effective in maintaining a fairly constant temperature at the various height levels in a room. The lower portion of the wall above the baseboard is kept at a greater mean radiant temperature and adds to comfort. Convection currents are more distributed than in radiator systems and will result in less wall discoloration if the system is otherwise well designed. Response to a call for heat is as fast as that of any system.

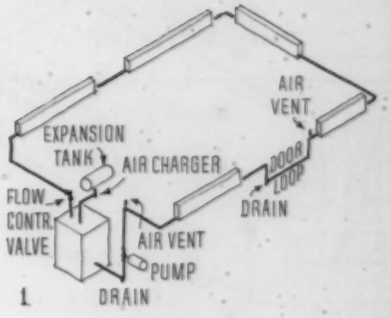
### *Performance*

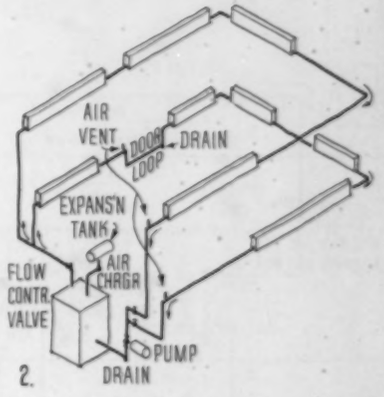
Except for the series feature, the performance of a series loop, forced hot water system is similar to that of any hot water system using a circulating pump. The connections at the boiler are the same. For a complete diagram of suggested connections, the reader is referred to Time-Saver Standards, Forced Hot Water Systems: 1, Sept. 1949. There, all connections are shown including controls and domestic hot water. An improved control is shown here in Fig. 7. Instead of turning the circulating pump on and off by means of a room thermostat, this system provides continuous circulation at a water temperature which varies to suit the outdoor temperature. Smoother operation is the result of this process.

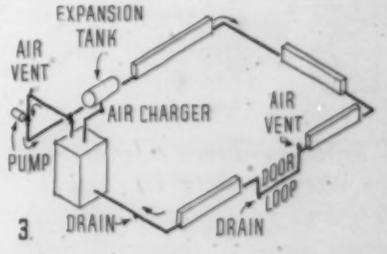
The baseboard system operates with the same or slightly better economy than a conventional radiator job of forced hot water. Maintenance is about the same, involving manual venting periodically of all the high spots instead of at each radiator. Automatic vents may be installed at an additional cost.

### *Pipe Expansion*

Straight runs of over 30 ft are not recommended unless expansion is provided for by means of a door loop (if it occurs) or of an expansion loop placed horizontally in a partition or other available space.




**TYPICAL LAYOUTS FOR BASEBOARD CONVECTORS**

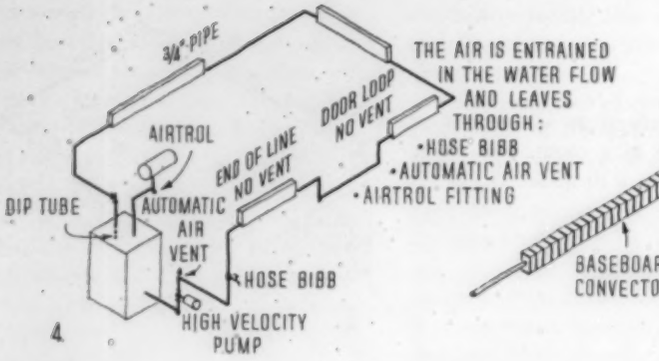
1. *Single circuit series loop.*
2. *Multi-circuit (2 story) series loop. Note balancing valves above pump.*
3. *Series loop, convectors level with or below boiler. Note recommended position of pump.*

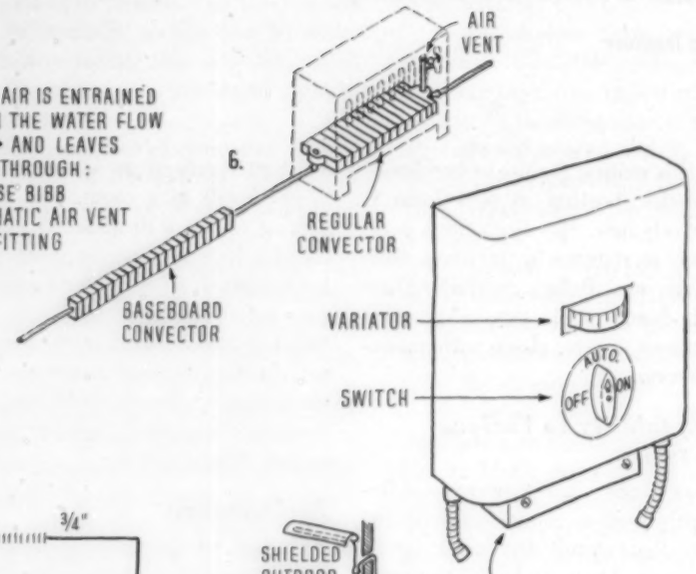
*Notes: Examples are series loop and forced hot water, the most commonly used type. Drain all low points and vent all high points in each system.*

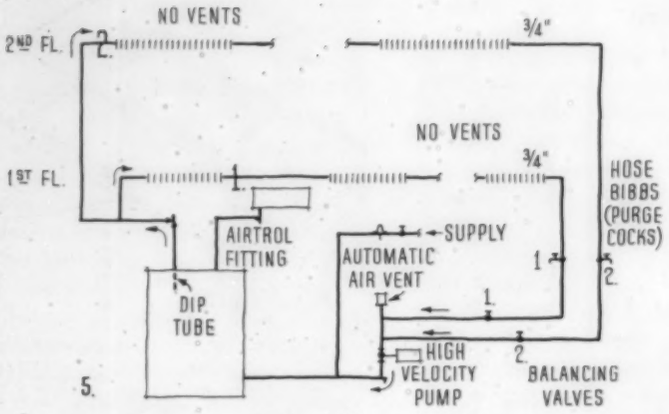
# HEATING SYSTEMS FOR HOUSES

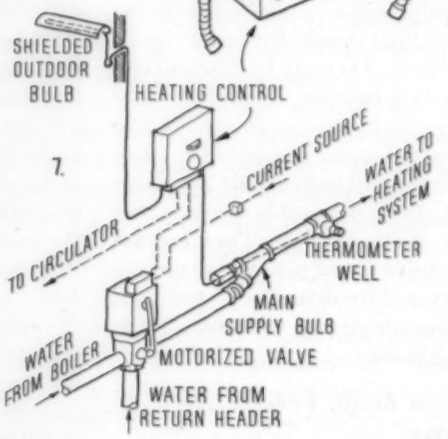
## *Convector Baseboard Heating Systems: 2—Special Layouts*

*By William J. McGuinness*




***4. System using vents at boiler only.*** *The Warren Webster Co., by using 3/4 in. units and 3/4 in. pipe, with high velocity circulator, maintains water speed between 2 and 5 ft/sec. At this rate air is carried back to boiler where it rises. Dip-tube prevents its re-entrance into system. It leaves through airtrol fitting. Air clinging to pump impeller rises and is exhausted by automatic vent. At start of season, hose bibb and supply valve (not shown) are opened. Pump is started. Air leaves through hose bibb. When a solid water stream flows, hose bibb is turned off.*

*No additional vents for door loops or at end of line are needed with this system.*

***5. Warren Webster 2-circuit system.*** *Pre-season air purging is accomplished separately in circuits 1 and 2 by means of valves 1 and 2 and hose bibbs 1 and 2. To purge circuit 1, close valve 2, open hose bibb 1 and supply line. Pump until solid stream emerges from hose bibb 1. Then close hose bibb 1. Circuit 2 similarly vented. System then operates as described.*

***6. Combined use with regular convectors.*** *Where scanty wall space precludes use of baseboard convectors, regular copper convectors and enclosures may be used in same circuit with some changes in the engineering design. Regular convector should be vented.*

***7. Controls.*** *The Warren Webster control shown above operates automatically to vary water temperature supplied to base units, as set by outdoor temperature. With control unit switch set at "automatic," motorized valve mixes boiler water and return water to produce a temperature which is increased as outdoor temperature drops. At outdoor "design temperature" boiler water only is circulated Circulating pump runs continually and boiler water is kept at maximum temperature by an aquastat controlling fire. Variator permits a slight adjustment during automatic operation. "On" position of switch causes boiler water only to be passed, for a quick warm-up. "Off" turns off circulator.*

# HEATING SYSTEMS FOR HOUSES

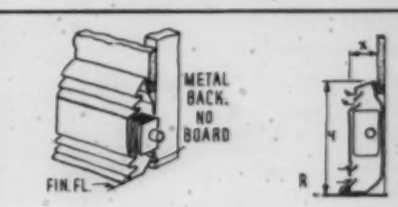
## *Convector Baseboard Heating Systems: 3—Basic Data Table*

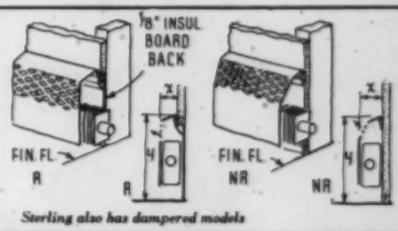
*By William J. McGuinness*

| MFR. & TYPE (Partial Listing) | SIZE (Inches) & MATERIAL | | TYPES AVAIL. & DIMENSIONS | | OUTPUT Btu/Hr/Lin Ft of Base at Water Temp. F | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Pipe | Fins | Recessed | Non Recessed | 170° | 180° | 190° | 200° | 215° |
| DUNHAM BOTS | 1 Steel | 2¾ x 4 Steel | X Y (Inches) 2½ x 10 | X Y (Inches) | 562 | 636 | 722 | 807 | 948 |
| BOTSA | 1 Steel | 2¾ x 4 Alum. | 2½ x 10 | | 695 | 792 | 900 | 1005 | 1180 |
| BOTCA | 1 Copper | 2¾ x 4 Alum. | 2½ x 10 | | 735 | 835 | 946 | 1055 | 1245 |
| STERLING (Distrib. by H. B. SMITH) & U. S. RADIATOR Fin-Ray | 1 Steel | 2 x 4¼ Steel | 1½ x 8 | 2⅛ x 7¾ | 370 | 420 | 470 | 525 | 600 |
| | 1¼ Steel | 2¾ x 4½ Steel | 2¼ x 9 | 2⅞ x 8½ | 565 | 645 | 725 | 805 | 925 |
| WARREN WEBSTER HNL (*Heating Element Low*) | ¾ Copper | 2¼ Diam. Copper | | 2 x 8¼ | 310 | 350 | 400 | 450 | * |
| HNS (*Heating Element Std.*) | ¾ Copper | 2¼ Diam. Copper | | 2 x 8¼ | 380 | 430 | 490 | 550 | * |
| | | | | | (*Depends on Fins/in.*) | | | | |
| U. S. RADIATOR Comfort Ray | Steel Assembly See Detail | | 2 x 10 May be recessed | | 445 | 500 | 565 | 625 | 720 |
| VULCAN Standard | 1 Steel | 2 x 4¼ Steel | 1⅜ x 8 | 2⅛ x 8 | 369 | 421 | 469 | 523 | 600 |
| Standard | 1¼ Steel | 2¾ x 3¾ Steel | 2⅛ x 8⅛ | 2⅞ x 7¾ | 568 | 648 | 721 | 806 | 924 |
| F.S. Cover | 1 Steel | 2 x 4¼ Steel | 1⅜ x 8⅛ | 2¼ x 8½ | 341 | 389 | 433 | 484 | 555 |
| F.S. Cover | 1¼ Steel | 2¾ x 3¾ Steel | 2¼ x 8½ | 2¹⁵⁄₁₆ x 8½ | 525 | 600 | 668 | 748 | 855 |
| F.S. Cover (2 high) | 1 Steel | 2 x 4¼ Steel | 1⅜ x 13 | 2¼ x 13 | 566 | 644 | 720 | 802 | 920 |
| F.S. Cover (2 high) | 1¼ Steel | 2¾ x 3¾ Steel | 2¼ x 13 | 2¹⁵⁄₁₆ x 13 | 872 | 994 | 1110 | 1249 | 1420 |

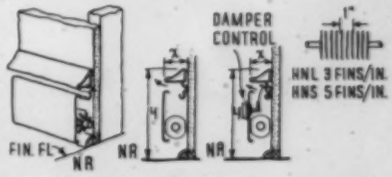
*(Note: This is a pressed steel unit more comparable to Cast Iron Radiant Baseboard. Systems are designed on that basis.)*

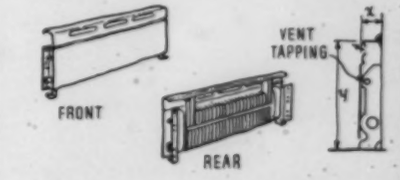
**DETAILS**
**R = Recessed**
**NR = Non Recessed**

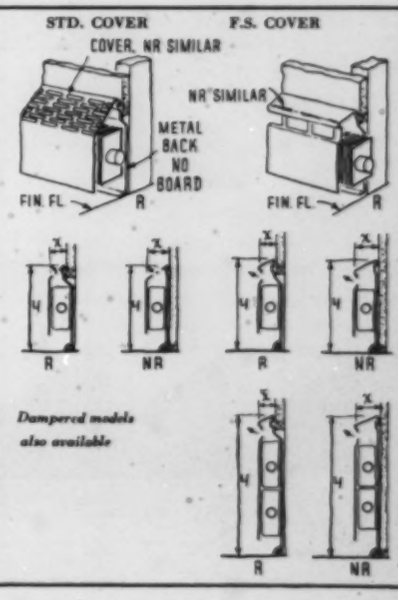



*Sterling also has dampered models*



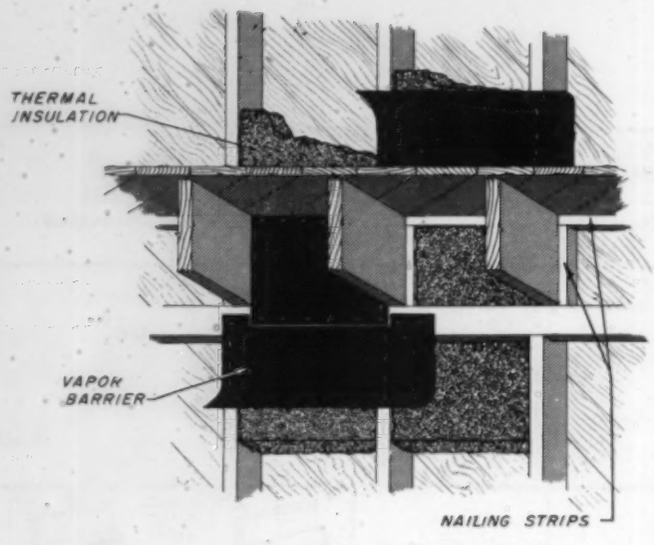




*Dampered models also available*

*Notes:*
1. *Vulcan uses aluminum & copper also. For ratings see literature.*
2. **Warren Webster does not recommend temperatures over 200 F.*
3. *The sq ft of radiation per ft of length may be determined by dividing Btu/lin ft output by standard heat emission in Btu/hr at temperature. Example: 600 Btu/hr/lin ft (at 215 F) ÷ 240 Btu/sq ft/hr = 2.5 sq ft of rad/lin ft.*

# CONDENSATION CONTROL FOR HOUSES

## *Vapor Barriers: 4 — Ceilings*

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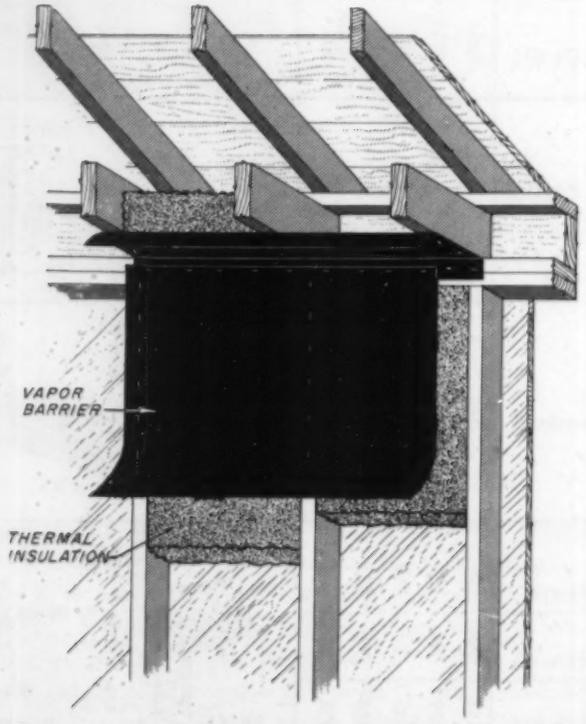


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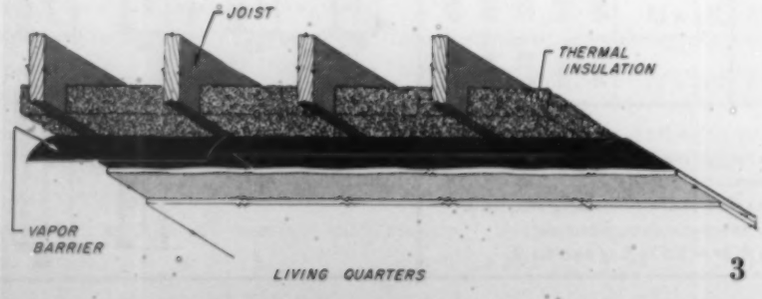


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THIS is the second of two parts abridged from the Housing and Home Finance Agency's publication, *Condensation Control*, by the U. S. Dept. of Agriculture in collaboration with the HHFA.

### *Junction of Second Floor and Wall (Fig. 1)*

1. *Vapor barriers* should be carefully placed over nailing strips at end of spaces between joists and along wall at joist level, to restrict flow of water vapor into outside walls. Floor and ceiling provide large surfaces through which water can penetrate into enclosed area. These can contribute more vapor to end of space than an equal area of outside room walls.

2. *Insulate* wall sections between floor joists and along wall at joist level as carefully as the main wall areas; heat loss will be as great as in other outside wall areas.

3. *Air spaces* should be allowed on both sides of insulation where practical, and always when reflective-type insulation is used.

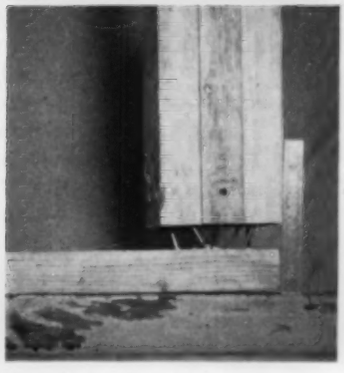
### *Ceilings Adjacent To Unheated Attic (Figs. 2 and 3)*

1. *Vapor barriers* are considered necessary on the warm side of all top story ceilings in areas with temps of −20 F and colder, and with flat roofs in warmer climates. They should be applied below joists and running parallel to them, prior to attachment of ceiling. Lap over side wall plate and fit carefully around openings. Hatches should be closed tightly by catches. In existing buildings, barriers can be applied above ceiling and held in place by wood strips fixed over barrier edges turned up against joists.

2. *Insulation*, when used, should be placed over ceiling after latter has been applied, and on backs of all doors into unheated spaces.

(*Continued on page 149*)

# PRODUCTS for Better Building



*Tests on green lumber house frame assembled with plain nails (below) resulted in nail failure at joint; frame with annularly grooved nails (top) failed first at base plate. Detail of new nail at left*

### *Annularly Grooved Nails*

According to a research report, "Thrust Resistance Of Housing Frames," by E. George Stern, Director of Wood Research Laboratory, Virginia Polytechnic Inst., annularly grooved *Stronghold* nails exhibit far greater holding strength than ordinary plain-shank nails.

After a study of the accepted standards of designing wood members in a frame structure, it was deduced that the initial resistance of the frame to lateral forces depends primarily on the efficiency of the joints, or nails. To provide data on joint strength, comparative racking tests on typical southern pine housing frames were set up, employing dry and green lumber, and regular and improved nails.

Test results indicated that the frame built with green lumber and assembled with improved nails supported a 4.6 times larger lateral thrust than the one with plain-shank nails; and the dry lumber frame with annularly grooved nails supported a 5.2 times larger lateral thrust than the one with ordinary nails. The frames built with dry lumber supported 1.5 (plain-shank nails) and 1.7 (improved nails) larger lateral thrusts than those built with green lumber. Independent Nail & Packing Co., Bridgewater, Mass.

### *Waterproof Finish For Asphalt Shingles*

*Asphalt-Seal*, a waterproof finish for weatherproofing and beautifying dirty, weatherbeaten asphalt side-wall and roof shingles, is said to stop bleeding and crumbling of the shingles by sealing the pores of the surface. The product is reported equally applicable to all other types of asphalt materials. It comes ready-mixed in three light and four dark colors.

A companion product, *Shingle-Seal*, is manufactured for use on asbestos materials. Dewatex Mfg. Corp., 42nd St. and Dyer Ave., New York 18, N. Y.

### *Vandal-Proof Floor Drain*

A new floor drain makes use of a special lock which allows only authorized personnel to have access to the internal strainer and drainage line. The tamperproof cover is designed to eliminate the possibility of vandals clogging or damaging the drain. The unit was developed for use in public buildings, hospitals and institutions, and reportedly meets the latest government specifications. J. A. Zurn Mfg. Co., Pittsburgh Ave., Erie, Pa.

### *Power Exhauster*

The *Air-Van* power air exhausting unit is claimed to be completely weatherproof and to have the heaviest construction of any device of its kind. The pancake type motor is enclosed and out of the air stream, which is said to eliminate damage by moisture and corrosive fumes. The air outlet is designed to prevent blow-back under extreme weather conditions. Air is expelled out and downward onto roof by a squirrel-cage fan, with no back draft damper required. The unit has a low silhouette to avoid projection above parapet. The Gallaher Co., 4106 Dodge St., Omaha, Neb.

### *Convector Radiators*

The line of *Cabinet Convector* radiators includes recessed, semi-recessed, free standing and wall-hung types. Designed for use with steam or forced hot water systems, the heating elements have seamless copper tubes expanded into aluminum fins. Each header is equipped with top and bottom fittings for ease of installation.

Cabinets are made of heavy gage steel, with square edges and corners. The front panels are said to be easily removed by hand, without the use of any tools. Wall-hung units are provided with either flat or sloping top and front outlet. Knockouts are provided for concealed piping hookups. Units are available in 6-, 8- and 10-in. depths, and all but the semi-recessed type in 4-in. depth. Lengths are in 4-in. increments from 16 to 64 in. The Rittling Corp., 1298 Niagara St., Buffalo 13, N. Y.

### *Compact Range*

Frigidaire *Thrifty-30* ranges feature 30-in. width and what are claimed to be the largest ovens in any electrical household range. The oven occupies the full width of the unit, directly under the four flat-top Radiantube surface cooking units. A full-width storage drawer is located under the oven. The units are all-porcelain, and come with appliance outlets, leveling glides and oven clock controls. Frigidaire Div., General Motors Corp., 300 Taylor, Dayton 1, Ohio.

### *Integral Color in Asbestos Panels*

Designed to eliminate painting and decorating expense, *Transitone* movable walls employ asbestos panels colored all the way through. They are available in two colors — light green or tan. The walls are said to be light weight, fireproof, and to have a pleasing texture. The panels are hung on steel studs, forming a 4-in. double-faced partition. They may also be used as interior finish for outside walls, and are said easily installed or relocated. Johns-Manville, 22 E. 40th St., New York 16, N. Y.

(*Continued on page 202*)

# MANUFACTURERS' LITERATURE

### *Aluminum Foil Insulation*

*Simplified Physics of Thermal Insulation.* Booklet describes properties and features of aluminum foil accordion insulation. Installation steps are illustrated for various type structures. Among the topics discussed are: heat transfer, conduction and density, absorption and emissivity, heat loss by radiation, reflection, condensation, humidity, performance tests, use with radiant heating systems and heat flow. A number of photographs, drawings, charts and suggested specifications are included. 44 pp., illus. Infra Insulation, Inc., 10 Murray St., New York, N. Y.

### *Air Diffusers*

*Selection Manual, Anemostat Draftless Aspirating Air Diffusers.* Presents the complete Anemostat line of air diffusers, accessories and volume controls. Many charts and graphs give data on: air changes per hour for heating, cooling or ventilating; neck velocities, ratings, application; projection distance; radius of floor spread; and dimensions. Typical specifications and installation notes are given with illustrations of special and typical applications. 64 pp., illus. Anemostat Corp. of America, 10 E. 39th St., New York 16, N. Y.*

### *Movable Walls*

*Mills Movable Metal Walls (Catalog No. 50).* Discusses the features of the movable walls for structural stability, adaptability, design, soundproofing, maintenance and economy. Construction drawings and specification data cover the various wall types, accessories, fittings and hardware. Uses in many types of construction are pictured. 48 pp., illus. The Mills Co., 975 Wayside Rd., Cleveland 10, Ohio.*

### *Custom Carpets*

*Nye-Wait, Carpets for the Few.* Pictures in color many textures, designs and color ranges available in wool or nylon custom-woven carpets. The manufacturing process is illustrated, along with rooms using the various styles of carpeting. 20 pp., illus. Nye-Wait Co., Inc. c/o Raymond and Heller, 295 Fifth Ave., New York 16, N. Y.

### *Fireproof Millwork*

*(1) Wood Fire Doors; (2) Custom-Built Millwork.* The first bulletin illustrates and describes Protexol-impregnated wood fire doors. Charts summarize fire test performance; construction details and characteristics are given.

The second contains information on the impregnation process and the facilities of the plant for producing custom millwork. A section explains construction and design features of Fox-made Gate City awning windows. 4 pp. ea., illus. Fox Brothers Mfg. Co., 2715 Sidney St., St. Louis 4, Mo.*

### *Flat Slab Construction*

*Smooth Ceilings System of Flat Slab Construction.* Bulletin gives design data for flat beamless floor construction with steel column heads embedded in the slabs. Typical details are given along with features of the system. Typical installations in finished and uncompleted stages, and a table covering comparative strength and stiffness are also given. 4 pp., illus. Smooth Ceilings System, 802 Metropolitan Life Bldg., Minneapolis 1, Minn.*

### *Aluminum Extrusions*

*Designing With Aluminum Extrusions.* Book explains basic principles for designing and using extruded aluminum shapes. Beginning with features and examples of extrusions, it continues with manufacturing possibilities and limits, and structural design considerations. Assemblies, connections and dimensional tolerances are analyzed, and the characteristics of aluminum, selection of alloy and temper, fabricating properties, finishes and cost factors are covered. Many diagrams, tables and pictures are included. The book is available without charge to engineers, architects, designers and others requesting it on company letterhead. 138 pp., illus. Reynolds Metals Co., 2500 So. Third St., Louisville, Ky.*

### *Special Service Doors*

*Bilco Doors For Special Services (1950 Catalog).* Covers a line of roof scuttles, hatchways; sidewalk elevator and ash hoist doors; trench covers and frames; and cellar doors for outside access. Each type is presented with photographs, details, dimensions, materials and other pertinent data. 12 pp., illus. The Bilco Co., 164 Hallock Ave., New Haven 6, Conn.*

### *Electric Conduits*

*National Electric Conduits. (Catalog No. 603).* Describes a line of conduits and tubing including rigid, flexible, metallic and non-metallic. Elbows, connectors and couplings are reviewed, along with straps, junction boxes and box connectors. Size and weight tables are given for each of the items covered. 30 pp., illus. National Electric Products Corp., Chamber of Commerce Bldg., Pittsburgh 19, Pa.*

### *Studless Partitions*

*Metal Lath News (Vol. 14 No. 1).* Covers studless, solid 2-in. partitions of metal lath and plaster. Phases of their construction on a number of building projects are described and illustrated. Features and test results are also given. Technical data sheets include specifications, erection details and sketches of fasteners. 16 pp., illus. Metal Lath Manufacturers Assn., 636 Engineers Bldg., Cleveland, Ohio.

### *Fibre Board*

*Tri-Ply Insul-Bond Fibre Board Products.* Discusses insulation and acoustical properties and features of the material for construction and decoration of walls, ceilings and partitions. A cutaway drawing demonstrates use of several types of

(*Continued on page 220*)

*Other product information in Sweet's File, 1950.*

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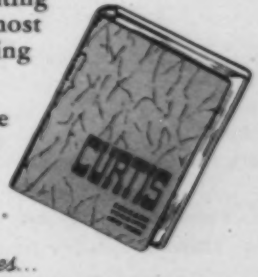


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# Who gets blamed *when a fireplace smokes?*

WHY are thousands of new homeowners caused the expense and disappointment of smoky fireplaces every year? Because many inexperienced masons fail to carry out architects' designs, use rule-of-thumb methods and build hearths out of proportion to flues. But, who is usually blamed by the homeowner? The Architect.

### *How to insure smokeless fireplaces without supervision*

The Heatilator* Fireplace unit is a complete fireplace from hearth to flue, around which any style of fireplace can easily be built . . . even by inexperienced masons, and without costly supervision by the architect. The Heatilator unit consists of:

1. *A scientifically designed firebox.*
2. *A properly proportioned throat.*
3. *A removable damper with adjustable poker control.*
4. *An extra wide down-draft shelf.*
5. *Complete metal smoke dome to speed passage of smoke into chimney.*

*Typical placement of warm-air grilles in a projecting fireplace.*

Because these vital parts are pre-built in one compact form, the Heatilator unit insures a fireplace that draws properly and will not smoke. It eliminates guesswork and other causes of failure.

### *Costs little, if any, more than ordinary fireplace*

Because the Heatilator unit is ready to install, it saves mason time and labor. It saves on expensive firebrick. ***Thus, a completed Heatilator Fireplace costs little, if any, more than an ordinary fireplace!*** In addition to this original economy, and even more important, your client can count on the *lifetime* economy of smokeless, trouble-free operation.

### *Heatilator unit ups fireplace efficiency*

The Heatilator Fireplace draws in cool air from floor level, heats it, and circulates it to every corner of the room, and to other rooms as well. On cool Spring and Fall days, this use of heat ordinarily wasted makes furnace operation unnecessary. In mild climates, it is the only heating equipment needed. It saves the cost of expensive heating plants that are used only a short time each year.

*A Colonial Fireplace built around a Heatilator unit. Warm-air grilles are located in the bookshelf sides.*

Heatilator Fireplaces are ideal for summer camps and cabins, making them usable weeks longer in Spring and Autumn. It solves the heating problem in basement recreation rooms without unsightly pipes and radiators. Heatilator units, made of boiler plate steel, are built for a lifetime.

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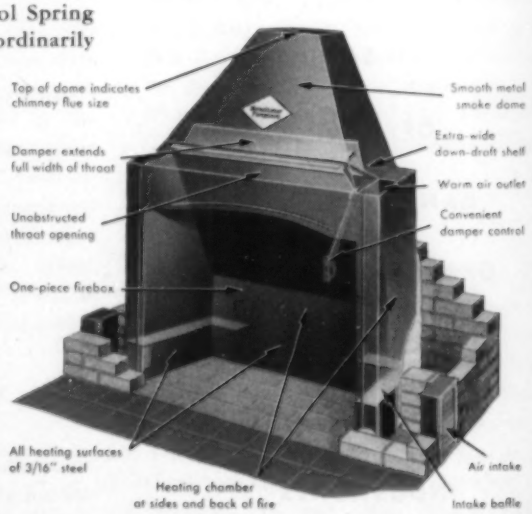
*The warm-air grilles in this striking Colonial fireplace are hidden in cupboards.*

Give clients the advantages of a Heatilator unit. Write today for complete information. Heatilator, Inc., 613 E. Brighton Avenue, Syracuse 5, N. Y.

**Heatilator is the reg. trade mark of Heatilator, Inc.*


Top of dome indicates chimney flue size
Smooth metal smoke dome
Damper extends full width of throat
Extra-wide down-draft shelf
Warm air outlet
Unobstructed throat opening
Convenient damper control
One-piece firebox
All heating surfaces of 3/16" steel
Heating chamber at sides and back of fire
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**FIREPLACE**

# CONDENSATION CONTROL FOR HOUSES

## *Vapor Barriers: 5 — Attics*

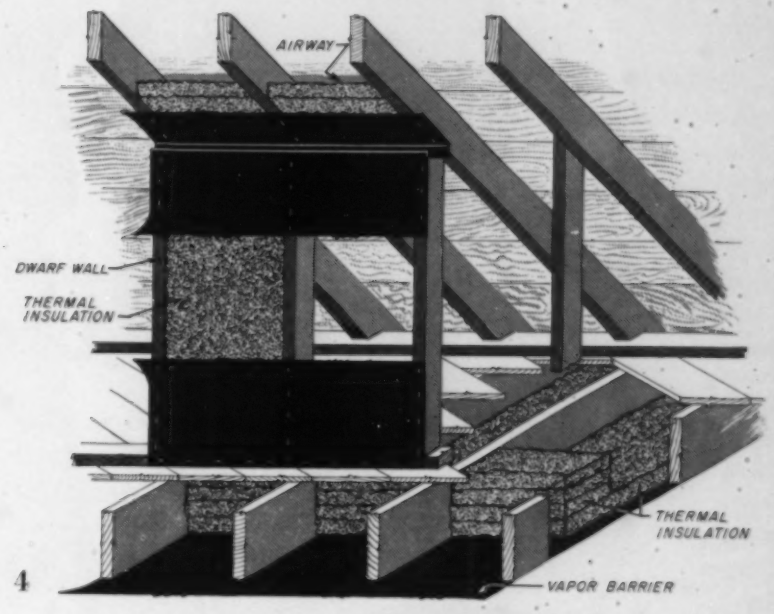
(*Continued from page 144*)

### *Partly Finished Attic With Dwarf Walls (Fig. 4)*

1. *Vapor barriers* should be installed on ceilings beneath unheated attic spaces as noted before. They may extend from between joists below dwarf walls, back to outside wall, but it would probably be less expensive and better to cover entire ceiling than to fit barriers between joists. Except in the southern states when insulation is omitted, dwarf walls, ceilings and roof over attic living areas should be carefully fitted with barriers. Fit doors to unheated spaces tightly to stops by weather strips or other seals. Thin doors inclined to warp should be held by catches.

2. *Insulation*, if used, should be placed on ceiling below unheated attic, on dwarf wall, roof over heated space and backs of doors to cold spaces.

3. *An airway* should be provided over insulation in roof. Provide for air circulation behind dwarf wall and between rafters.




4

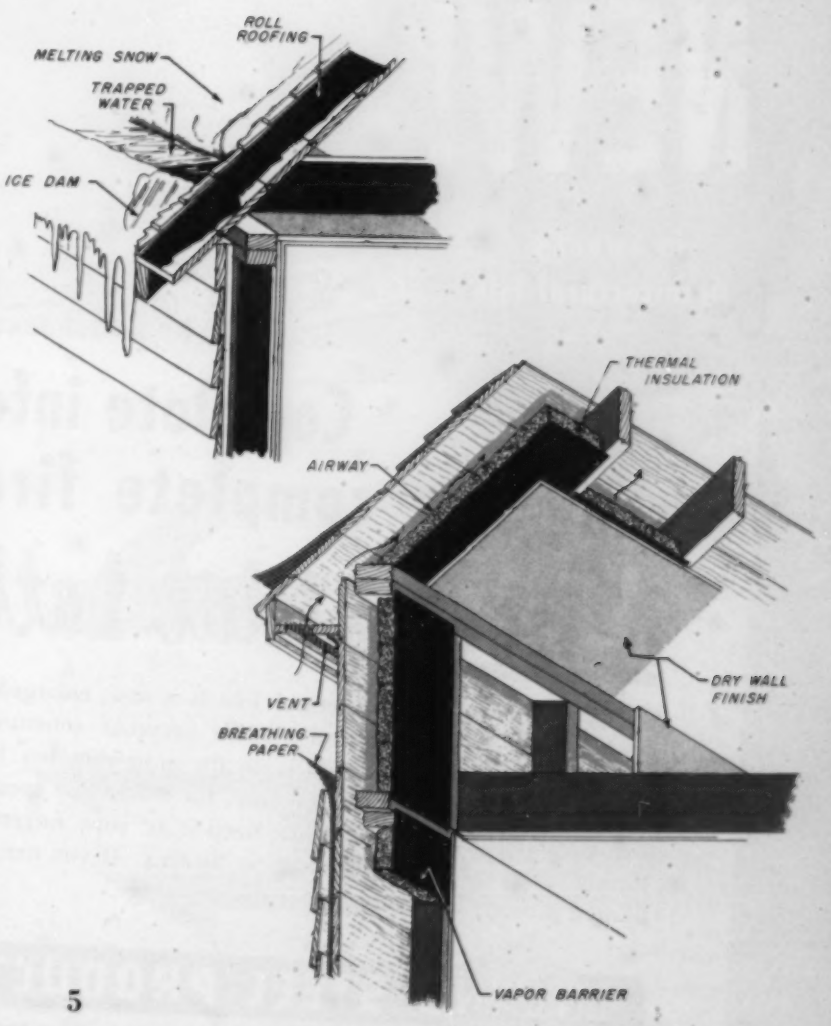
### *Finished Attics (Fig. 5)*

1. *Vapor barriers* should be placed around heated areas as noted in the previous section. Some form of dry wall finish is best along walls and lower part of roof to prevent damage to barrier. Ice along eaves often causes water to back under shingles and into building. To prevent this, lay single course of heavy roofing felt, roll roofing or sheet metal over eaves, and extend under shingles well above line of wall. Long nails projecting into attic or wall may condense water and collect ice in cold weather. As a safeguard against stained ceilings, etc., resulting from this, clip nails close to wood.

2. *Insulation*, when used, should be on both side wall and between rafters of roof.

3. *An airway* over insulation in roof should be allowed.

(*Continued on page 151*)




5

# Complete information on the most complete fireproof line

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Rochester 9, N. Y. • St. Louis 10, Mo

F-33

# CONDENSATION CONTROL FOR HOUSES

## *Vapor Barriers: 6 — Roof Ventilation*

*(Continued from page 149)*

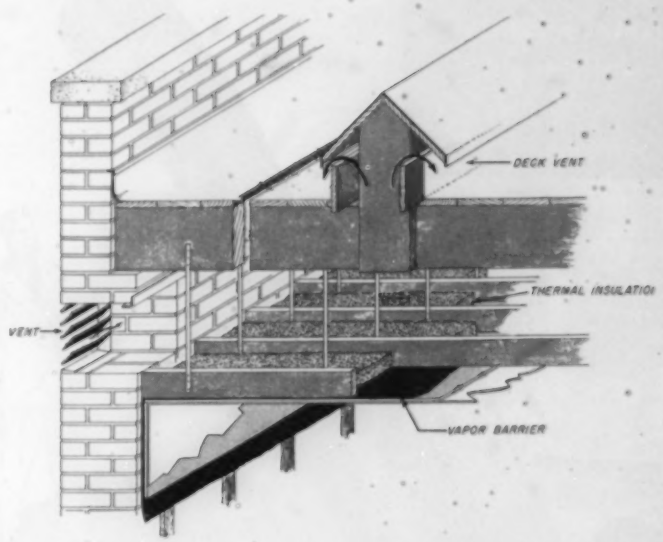
*Ventilation alone* may effectively control condensation in attics if ceiling below is not insulated, provided there is:
(1) an adequate amount,
(2) proper location,
(3) continuous operation,
(4) free circulation.
With insulation added or with very tight roofs, ventilation alone is not as effective, and vapor barriers are recommended.

*Net amounts of ventilation* should equal 1/300th of area of building or part thereof at eave line. In many areas increased ventilation may be desirable for summer comfort. See *Condensation Control For Houses*, Part I, Feb., 1950, for factor tables to compute total vent area from given net area. Wire mesh behind vents, with openings smaller than ⅛ in., keeps out insects. Openings too small restrict air movement and are easily clogged.

*Low-pitched roof decks* (Fig. 6) are best aired by vents along sides of building and deck vent running perpendicular to run of joists. Where ventilation in side walls is effective and in proper amount, center vent may be omitted. Vapor barriers are recommended where condensation is a major problem.

*Gable and hip roofs*, when finished for occupancy, should have: ½ required vent area in continuous air inlets below eaves (Fig. 5); airways, interconnected, through roof; and ½ vent area in outlets (such as Fig. 8) near ridge. Where occupancy is planned, gable roofs should have at least two louvers (Fig. 7) on opposite sides, located near ridge.

*Flat roofs* (Fig. 9) should be provided with vapor barriers, vents uniformly distributed at eaves, and airways clear from one side of building to the other. Place vents as near outside of cornice as possible to minimize amount of snow driven in by wind.

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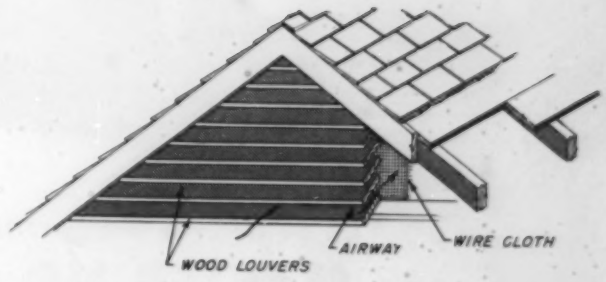


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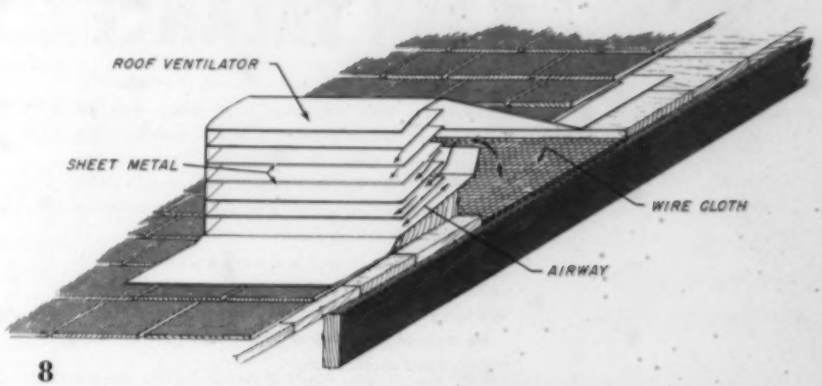


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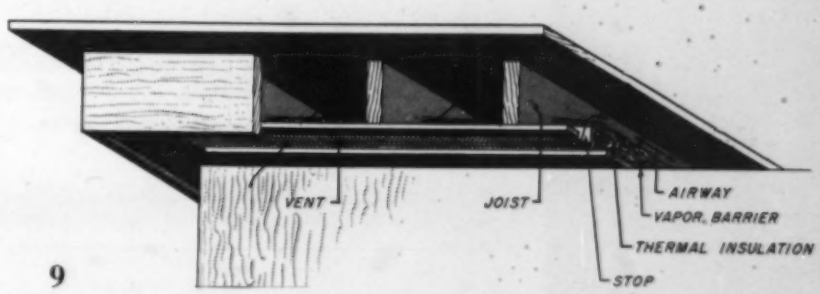


9

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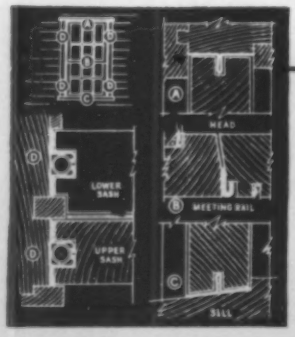


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# THE RECORD REPORTS

(*Continued from page 24*)

standards maintained through every segment of the construction industry," the chapter has voted to appoint an investigating committee on ethics of general and subcontractors and their relationships to the architectural profession.

***Michigan*** — The Society's 36th annual convention will be held March 9 and 10 at the Hotel Statler in Detroit. Carl B. Marr is chairman of the Convention Committee.

***Tennessee*** — Editor Harrison Gill of the chapter's monthly publication, *The Tennessee Architect*, was recently asked to orate before a group on that familiar topic: the difference (if any) between "modern" and "contemporary" architecture. Here is how Editor Gill sums up his comparison:

"As I remember the development of terminology in recent years, the word 'contemporary' was suggested for use in discussing buildings with clients who were allergic to 'modern.' 'Modernistic' we confine to attempts to create a style 10 or 20 years ago. Frank Lloyd Wright sums it up this way: '. . . The *modernistic* architectural picture-maker's deadly facility for imitation . . . Architecture is now integral architecture only when plasticity is a genuine expression of actual structure.' This definition of 'modernistic' as opposed to integral architecture narrows the field considerably and eliminates completely the creation of a style and the attempt to design a skin as deceptive as the proverbial disguise of the wolf."

***Washington*** — F. Stuart Fitzpatrick, manager of the Construction and Civic Development Department of the Chamber of Commerce of the United States, and Miss Harlean James, executive secretary of the American Planning and Civic Association, have been named as the 1950 recipients of honorary memberships in the American Institute of Architects.

## AT THE COLLEGES

### *Oregon School of Architecture Ups Entrance Requirements*

The University of Oregon School of Architecture and Allied Arts will go on an upper division basis beginning next fall, Dean Sidney W. Little has announced In effect, this will require junior standing in college for admission.

(*Continued on page 154*)

# WHY PUT UP WITH SPRINGY FLOORS?

There's no need today to accept springy floors as a necessary evil when planning a light-occupancy structure. Instead, design for solid under-foot stiffness by specifying open-web steel joists of proper span-depth ratio.

Bethlehem Open-Web Steel Joists are ideal for firm, non-springy floor construction because they minimize vibration without increasing the amount of material in the floor structure. What's more, they make any home or building in which they are used fire-safe, for when combined with concrete floor slab and plaster ceiling, they provide a type of floor construction which is non-combustible.

Bethlehem Open-Web Joists also offer other important advantages to the architect and builder. They save construction time, because pipes and wiring can be run through the open webs of the joists. They are immune to attack by termites and vermin. They provide floors which are sound-retardant. They come plainly marked, ready for placing. And they can also be used advantageously in roof construction.

You'll find our Folder 522A of great help in designing for economy and stiffness with Bethlehem Open-Web Joists. Ask the nearest Bethlehem sales office for a copy, or write to us at Bethlehem, Pa.

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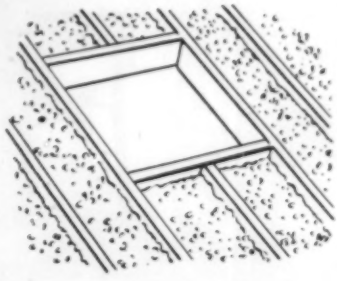
# How to make provision for attic fans in your homes

It is a simple matter to plan new homes so that they can be made comfortable throughout hot summer months. The two steps described below will save money for owners by providing for inexpensive installation of package attic fans, the most economical and practical means of cooling an entire house.

**Step 1. Frame for ceiling opening over hallway.**

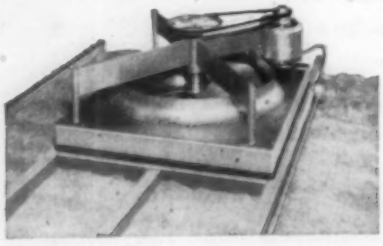
By framing and installing fan when home is built, no extra construction expense is involved. If installation is to be made later, framed opening can be temporarily plastered over or closed with plywood.



**Step 2. Provide adequate louvres in proper location.**

On new construction it costs very little to include ample exhaust openings to handle attic ventilation. These may be gable louvres or porch, soffit or basement exhausts, depending on the design of the house.

**Installation of Hunter Package Fan can then easily be made when home is built, or later**



This new fan is a compact unit, with built-in fan, motor and suction box. Fits low-clearance attics. Certified air delivery ratings for any size home or climate.

Automatic or pull chain shutters are quiet, tight-closing. Fit narrow hallways. Soft ivory finish (baked enamel) harmonizes with the color scheme of any room.

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Send copy of "How to Cool for Comfort" to:

Name..... Firm.....

Address..... City & State.....

# Hunter Package Attic Fans


## THE RECORD REPORTS

(*Continued from page 152*)

The change does not alter degree requirements, which will remain at five years for architecture and interior design and four years for general art. Sufficient non-specialized courses in architecture and art are being retained at the freshman and sophomore level to satisfy recommendations by the Association of Collegiate Schools of Architecture for continuous training.

### *Engineers' Council Sponsors New Accreditation Program*

Reaccreditation of engineering curricula in engineering colleges has nearly been completed by the Engineers' Council for Professional Development, an organization representing the major engineering societies of the nation.

Inspection of 114 colleges has been completed by the Committee on Engineering Schools of the E.C.P.D., under the chairmanship of H. T. Heald, president of the Illinois Institute of Technology. Inspection of the remaining 39 is expected to be completed this year.

Approximately 75 per cent of all the engineering curricula inspected have been fully accredited; 14 per cent have been provisionally inspected; and 11 per cent have not been accredited.

The problem of accreditation of graduate curricula in engineering colleges also is being studied by the Committee, which has prepared a definitive statement on the general characteristics of a good engineering curriculum.

The Committee has also accredited curricula in 13 technical institutes.

### *Special Courses*

• "Space Heating with Solar Energy" will be the subject of a course-symposium at the Massachusetts Institute of Technology August 21–26.

The program, which is sponsored by the Solar Energy Research Project under the Dr. Godfrey L. Cabot Fund for research in utilization of solar energy, will seek to "promote more discriminating application of the available engineering knowledge in architectural and engineering practice." A small registration and tuition fee will be charged.

Activity will be divided into two parts. The Educational Section will consist of a series of four or five lecture and discussion periods covering a brief historical survey of attempts at

(*Continued on page 156*)

HOME

APARTMENT

# *Again* THE BEST IS THE SIMPLEST

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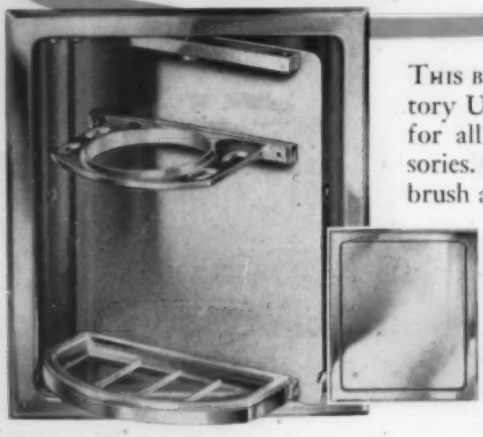
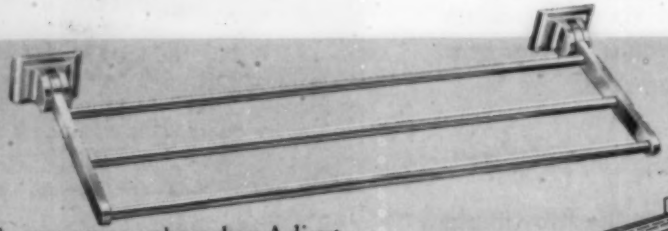


THIS BEAUTIFUL Concealed Lavatory Unit is a perfect companion for all other Hall-Mack Accessories. Soap, tumbler and toothbrush are ready at the touch of a finger—yet smartly concealed when not in use. These bathroom necessities are mounted on a revolving panel, and only a polished chrome surface flush with the bathroom wall is visible when the unit is closed . . .



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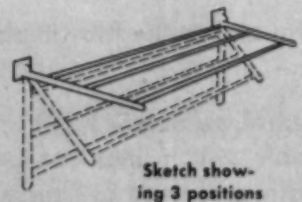

Sketch showing 3 positions of Towel Rack

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## THE RECORD REPORTS

(*Continued from page 154*)

utilization of solar energy; classification and discussion of the types of solar heat collectors; a review of current research; solar geometry; climatic factors and atmospheric absorption; design of a typical flat plate collector; discussion of glass, south-facing windows and overhangs; methods of heat storage; recommendations for utilization of the collected heat; and a few typical design problems.

The Symposium Section will consist of four or five symposium sessions with contributions from leading research people and others with actual experience in the field. The M.I.T. Solar House is conveniently located for demonstration purposes in connection with this symposium.

Further information and enrollment details are available from: Donald F. Monell, Research Associate, Solar Energy Research Project, Committee on Space Heating, M.I.T. Room 7-346, Cambridge 39, Mass.

• M.I.T.'s 12-week 1950 summer session will offer a series of subjects in climatology.

The special program, planned by the Department of Meteorology, will include eight courses, four each in the two summer terms from June 12 to July 21 and July 24 to September 1. The course subjects will cover general, applied and regional climatology, statistical methods, micrometeorology, and the theory of low-level turbulence and diffusion.

Application forms and further information may be obtained from Prof. Walter H. Gale, who is in charge of M.I.T. summer session activities, at Room 3-107, M.I.T., Cambridge 39, Mass.

### *Faculty Appointments*

• Gregg and Briggs, architects and engineers of Chicago and Peoria, Ill., have been appointed consultants to the University of Illinois on campus planning and development. One of the partners in the firm, Cecil C Briggs, has been serving half-time as visiting professor of architecture since 1948 and will continue his teaching as part of the new contract

• Three practicing architects will act as visiting critics for the College of

(*Continued on page 158*)

Kenneth E. Holmes, *Architect*

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 (*Continued from page 156*)

Architecture at Cornell University for the spring term. They are Sanford B. Wells and Philip C. Johnson of New York and Joseph N. Boaz of Oklahoma City. Mr. Johnson is director of the department of architecture and design at the Museum of Modern Art.

• Ernest J. Kump, San Francisco architect, is serving as visiting lecturer in architecture at Stanford University during the winter quarter. Mr. Kump is the second of three visiting lecturers for the Stanford Art Department during this school year. Albert Henry Hill, architect, also of San Francisco, was lecturer for the fall quarter; and Eldridge T. Spencer, the university's director of planning, will lecture during the spring quarter.


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Patented CORRUFORM is your guarantee for safe construction.

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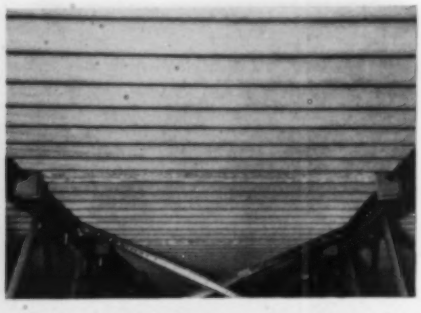

**3. CLEAN** — No cleanup on floors below, no unsightly leakage, true and level. Bright decorative corrugated pattern for exposed ceilings, vinylprimed for painting, or galvanized.

**HIGHEST STANDARD — LOWEST COST** — Patented Tough-Temper Corruform for concrete in joist floors and roofs sets new standards of appearance and safety. Corruform permits material and labor savings sufficient to reach minimum-cost joist construction.

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### *Fellowships*

• The annual competition for the Rice Institute Traveling Fellowship in Architecture will be held in the Department of Architecture at Rice from April 17 to May 19.

The Fellowship provides a sum of $1200 to be used for foreign travel and study, with a minimum of five months' residence in the foreign country chosen.

To be eligible for the fellowship, the candidate must have graduated from the Department of Architecture of the Rice Institute with a B.S. in Architecture, or attain this degree at the Commencement of June 1950. The candidate must be under 30 years of age.

Requests for application blanks should be addressed to: The Department of Architecture, The Rice Institute, Houston 1, Tex.

• Final drawings in the competition for the Schermerhorn Fellowship for 1950-1951 must be submitted not later than April 1, the Columbia University School of Architecture program specifies.

The fellowship, one of three traveling fellowships given successively, one every third year, by the school, is available to graduates of the school during the 10 years after they first receive a degree from the school. They must be citizens of the United States.

The competition for the fellowship is conducted in two stages The preliminary competition, a three-day sketch problem, was held in January; and competitors chosen to enter the final competition received their programs February 11

Final judgment will be held at the School of Architecture during the last half of April.

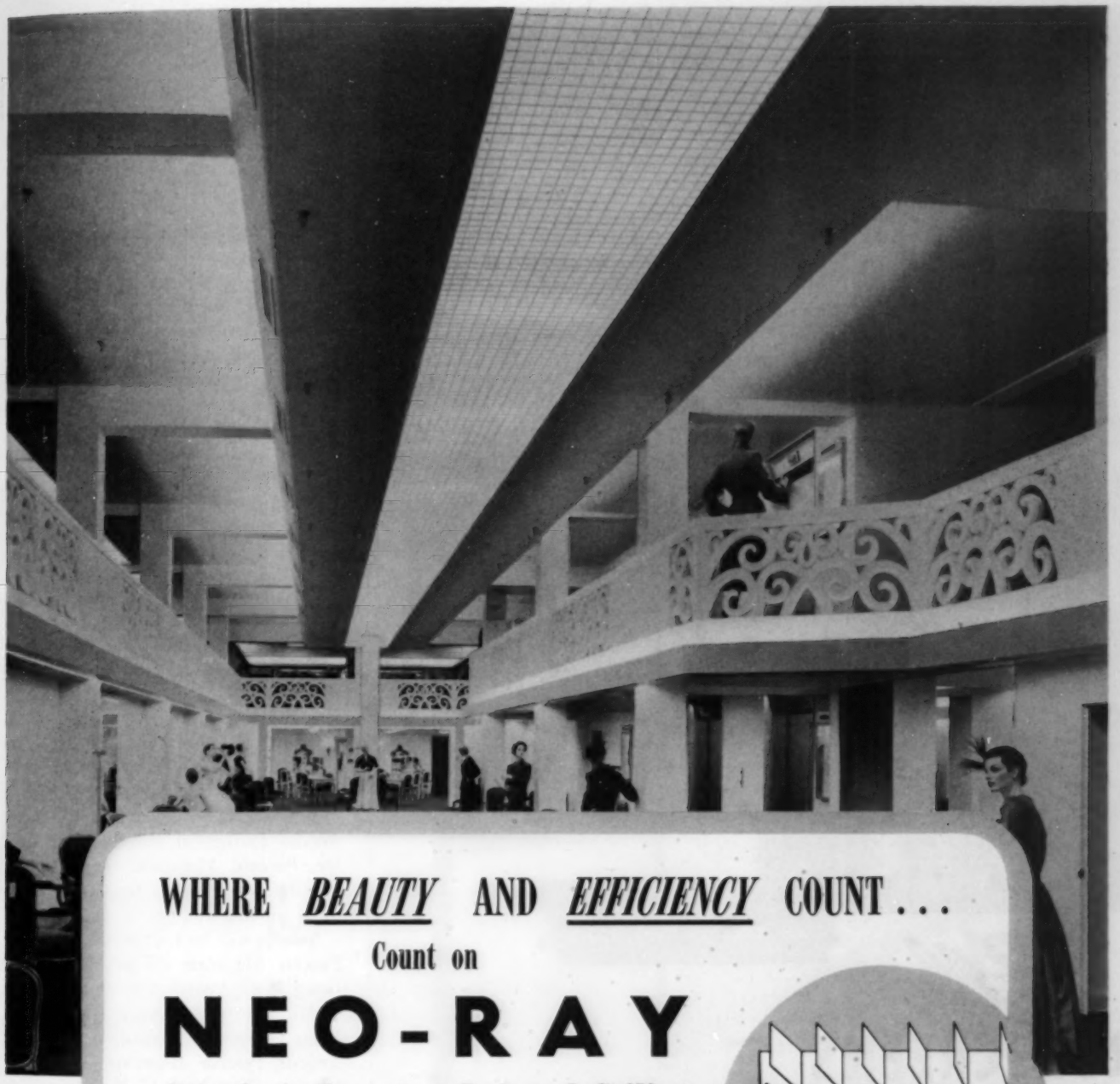
## EXHIBITIONS

### *Product Design*

Industrial design was spotlighted as a large-scale showing of the work of Brooks Stevens Associates at the Milwaukee Art Institute opened on January 10 for a six-weeks period.

Marking the 15th year of the firm's existence, the exhibition surveyed 125 products designed for nearly 100 companies. These products ranged from paper packages to heavy machinery,

(*Continued on page 160*)



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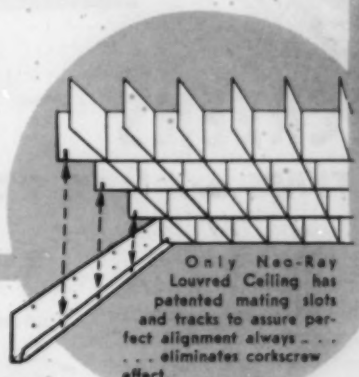

Only Neo-Ray Louvred Ceiling has patented mating slots and tracks to assure perfect alignment always . . . . . eliminates corkscrew effect.

Lighting beauty and efficiency are achieved with Neo-Ray Louvred Ceiling in Russeks Department Store, Philadelphia, Pa.

*Architect:* Thalheimer & Wietz

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Remember — on the next job that calls for efficient lighting plus beauty that blends with attractive interiors — specify Neo-Ray Louvred Ceilings.

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*Plus*

New simplified spot lamp tables for computing light intensities in show windows and all highlighted areas.

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 (*Continued from page 158*)

from kitchen utensils to an entire factory.

Industrial design was also the topic of a national conference held at the Institute January 28, with the sponsorship and cooperation of the Society of Industrial Designers. Speakers at the conference included Walter Dorwin Teague, Egmont Arens, Dave Chapman, Brooks Stevens, James S Plaut, and Philip McConnell.

### *Plant Maintenance Show*

More than 100 companies had exhibits in the first national Plant Maintenance Show held in the Cleveland Auditorium January 16–19.

The first major conference on plant maintenance was conducted at the same time under the sponsorship of the American Society of Mechanical Engineers and the Society for the Advancement of Management.

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ROLSCREENS provide freedom from screen troubles! Once in place, always in place. No putting up — no taking down! No painting! No seasonal repairs! No storage space required. By minimizing window screen maintenance, ROLSCREENS pay for themselves over the years.

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## COMPETITIONS

### *Homes for Family Living*

A Builders' Competition offering 10 Merit Awards for the "Best Homes for Family Living" built and sold in the United States during 1949 is sponsored by *Parents' Magazine.*

Entries, which will be divided into five regional groups according to geographical location, will be judged in two price groups based on actual selling price: houses sold for less than $16,000 and houses sold for $16,000 to $25,000.

One award will be made in each cost class for each of the five geographical regions. From the 10 Merit Awards, one house will be selected for the 1949 National Merit Award for the Best Home for Family Living.

Jury of Award for the competition, which closes May 1, 1950, will include the president of the National Association of Home Builders; Richard Bennett, A.I.A., of Loebl, Schlossman & Bennett; William H Scheick, A.I.A., executive director, Research Advisory Board, National Research Council; Mrs. Maxine Livingston, Family Home Editor, *Parents' Magazine.* Also members of the jury will be five regional advisers to be announced later.

Awards will be Certificates of Merit. *Parents' Magazine* will publish the National Merit Award.

Full information may be obtained from: Builders' Competition for Merit Awards, *Parents' Magazine,* 52 Vanderbilt Ave., New York 17, N. Y

### *John Stewardson Scholarship Offered for Advanced Study*

U. S. citizens between 21 and 30 who have studied or practiced architecture in Pennsylvania for at least a year are invited to compete for the John Stewardson Memorial Scholarship of $1300 for architectural study in this country or abroad under direction of the Managing Committee.

Candidates must also meet one of the following alternative requirements: four years' office experience; three years' office experience and one year college; two years' office experience and two years college; four years college and no office experience. The college must be an accredited school of architecture.

Registration must be made by March

(*Continued on page 162*)

# PLUGIN (FA) BUSDUCT

**YOUR ELECTRICAL DOLLARS WILL GO MUCH FARTHER** with Plugin (FA) Busduct . . . because here's an electrical distribution system designed to economize on everything but efficiency.

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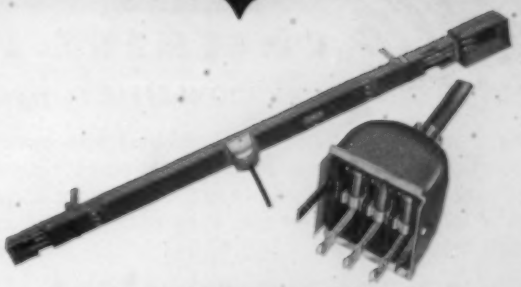

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 (*Continued from page 160*)

15. Blanks are available from Henry D. Mirick, Secretary, Room 809, 12 S. 12th St., Philadelphia 7, Pa.

## AWARDS

### *Elgin Home Building Contest*

Elmer Gylleck, Architect, of Elgin, Ill., was among five winners of the 1949 Elgin Better Building Contest sponsored by the Elgin Real Estate Board.

Mr. Gylleck, who designed the winning entry in the $10,000 to $15,000 class, was honored for the two-bedroom frame house erected for Milton Goodson, owner.

In the $15,000 to $20,000 class, the winner was Engineer Robert E. Linden, for the house he designed and built for himself.

Others honored were Builders Earl Creemans (under $10,000), Sevrin C. Swabeck (over $25,000) and Clifford Lamp ($20,000 to $25,000).

Judges in the contest were Earl H. Reed, Chicago architect, the real estate editors of three Chicago newspapers and two magazine editors

### *Students Awarded Rust Prizes*

Two students in the Carnegie Institute of Technology School of Architecture have received cash prizes from the Rust Engineering Co. of Pittsburgh for exceptional handling of problems involved in designing modern plants for production of window glass.

Casimir J. Pellegrini Jr. of Pittsburgh was awarded first prize of $100 and Robert T. Stevens of Carnegie, Pa., was awarded the $50 second prize. Both are sons of architects.

The winning students submitted designs of glass factories, suitable for a Pittsburgh site, capable of producing 200 tons of flat window glass per day. Both designs were cited for excellent handling of raw materials, production flow, ventilation of furnace building, and arrangements of glass cutting booths, warehousing and personnel and administrative facilities.

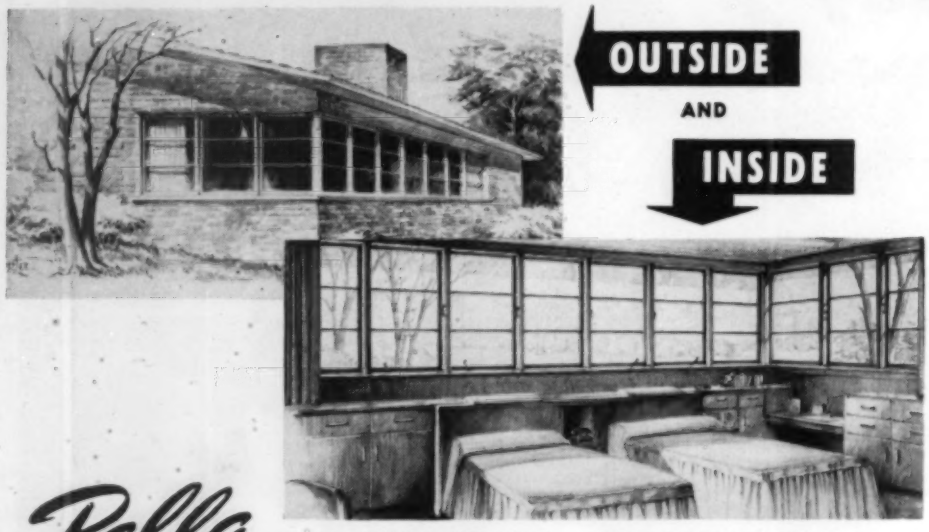
Mr. Pellegrini is the son of Mr. and Mrs. C. J. Pellegrini of Pittsburgh, and Mr. Stevens is the son of Mr. and Mrs. Percy Stevens of Carnegie.

Members of the judges' panel were: B. Kenneth Johnstone, dean of the College of Fine Arts, Carnegie Tech; John Pekruhn, assistant professor of architecture; Joseph E. Spagnuolo, associate professor of architecture; and Mario C. Celli, chief architect, the Rust Engineering Co., who also acted as visiting critic, assisting the regular faculty during classes for students working on the problem.

### *Steichen and Reynolds Chosen For 1950 A.I.A. Medal Awards*

Edward Steichen, photographer, of Ridgefield, Conn., and Joseph Gardiner Reynolds Jr., artist and designer of stained glass windows, will receive the medal awards of The American Institute of Architects for 1950 for distinguished work in arts relating to architecture. The Fine Arts Medal will be presented to Mr. Steichen and the Craftsmanship Medal to Mr. Reynolds at the A.I.A. annual convention in May.

(*Continued on page 164*)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## THE RECORD REPORTS

(*Continued from page 162*)

### ELECTIONS APPOINTMENTS

• Lester T. Avery, president of the Avery Engineering Co. of Cleveland, has been elected president for 1950 of the American Society of Heating and Ventilating Engineers. Other officers elected were: Lauren E. Seeley, dean of the College of Technology, University of New Hampshire, first vice president; Ernest Szekely, president, Bayley Blower Co., Milwaukee, second vice president; Reg F Taylor, consulting engineer, Houston, Tex., treasurer Mr. Avery succeeds Alfred E. Stacey Jr., director of application engineering for the Carrier Corp , Syracuse, N. Y.

• W. Fred Dolke has been elected president of the Chicago Building Congress, and Paul D. Angell was named executive vice president. Other architects among the officers and directors are: William Holabird, Elmer C. Jensen, Jerrold Loebl and Charles W. Nicol.

• F. Ray Leimkuehler, supervising architect for the St. Louis Board of Education, has been appointed chairman of the Board of Adjustment of the City of St Louis. The Board handles appeals from rulings of the City Building Commissioner and the City Board of Public Service in matters relating to zoning within the City of St. Louis.

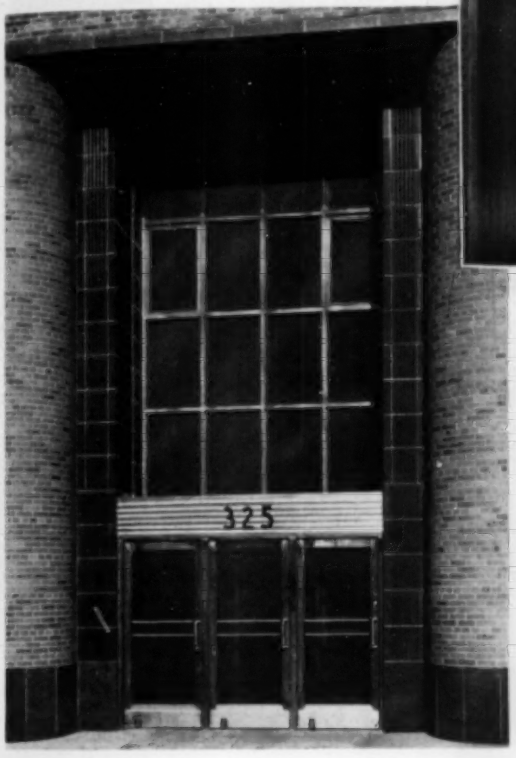
• Paul R. MacAlister has been elected chairman of the Board of the Chicago Chapter of the American Designers' Institute. Officers also include: Robert C. Williams, vice chairman; Joseph R. Mango, secretary; and Eugene R. Russell, treasurer. The National Board of Trustees at the annual meeting also voted to move the Institute's headquarters to Chicago.

• Officers for 1950 of the National Association of Real Estate Boards have been elected as follows: Robert P. Gerholtz, Flint, Mich., president; H. Walter Graves, Philadelphia, treasurer; and, as regional vice presidents, Robert W. Leavitt, Lake George, N. Y.; Nestor Weigand, Wichita; W. Ed Wallace, Oakland, Calif.; Kenneth E. Sarles, Racine, Wis.; Claude A. Campbell, Toledo; Ernest H. Howerton, Logan, W. Va.; Edward S.

(*Continued on page 166*)

**UNION MOTOR TRUCK TERMINAL**
**Spring Street, New York, N. Y.**
**Architectural Division of**
**Port of New York Authority**—*Architects*
**Cauldwell-Wingate Company**—*Builders*

*Enduro-Ashlar Architectural Terra Cotta, in a warm orange-brown, harmonizes pleasingly with the variegated brick surfacing of this huge modern structure.*



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## THE RECORD REPORTS

(*Continued from page 164*)

O'Donnell, Holyoke, Mass.; Larry W. Long, St. Petersburg, Fla.; Ira E. High, Boise, Idaho; M. A. Rowe, Houston; Harold J. Grove, Omaha; Irving F. Truitt, Norfolk, Va ; and Floyd S. Padgett, Colorado Springs.

• Harry S. Rogers, president of the Polytechnic Institute of Brooklyn, was elected chairman of the Engineers' Council for Professional Development at the annual meeting of that organization.

• Emil J. Szendy, A.I.A., of New York City, specialist in the study and preparation of building codes, has been named technical director for the New York State Building Code Commission. Mr. Szendy will receive a salary of $12,000

• Officers for the Society of Architectural Historians have been elected for 1950 as follows: president, Buford L. Pickens, New Orleans; vice president, Charles E. Peterson, Philadelphia; secretary-treasurer, Mrs. John M. Gilchrist, Mount Vernon, N. Y.; editor of the Journal, Walter L. Creese, Louisville; directors, Karl Lehmann, New York University, and Carroll L. V Meeks, Yale University.

• Miss Ione Ulrich has been elected treasurer of the Museum of Modern Art, New York City. Miss Ulrich, who is Mrs. George W. Sutton Jr. in private life, has been assistant treasurer and business manager of the Museum.

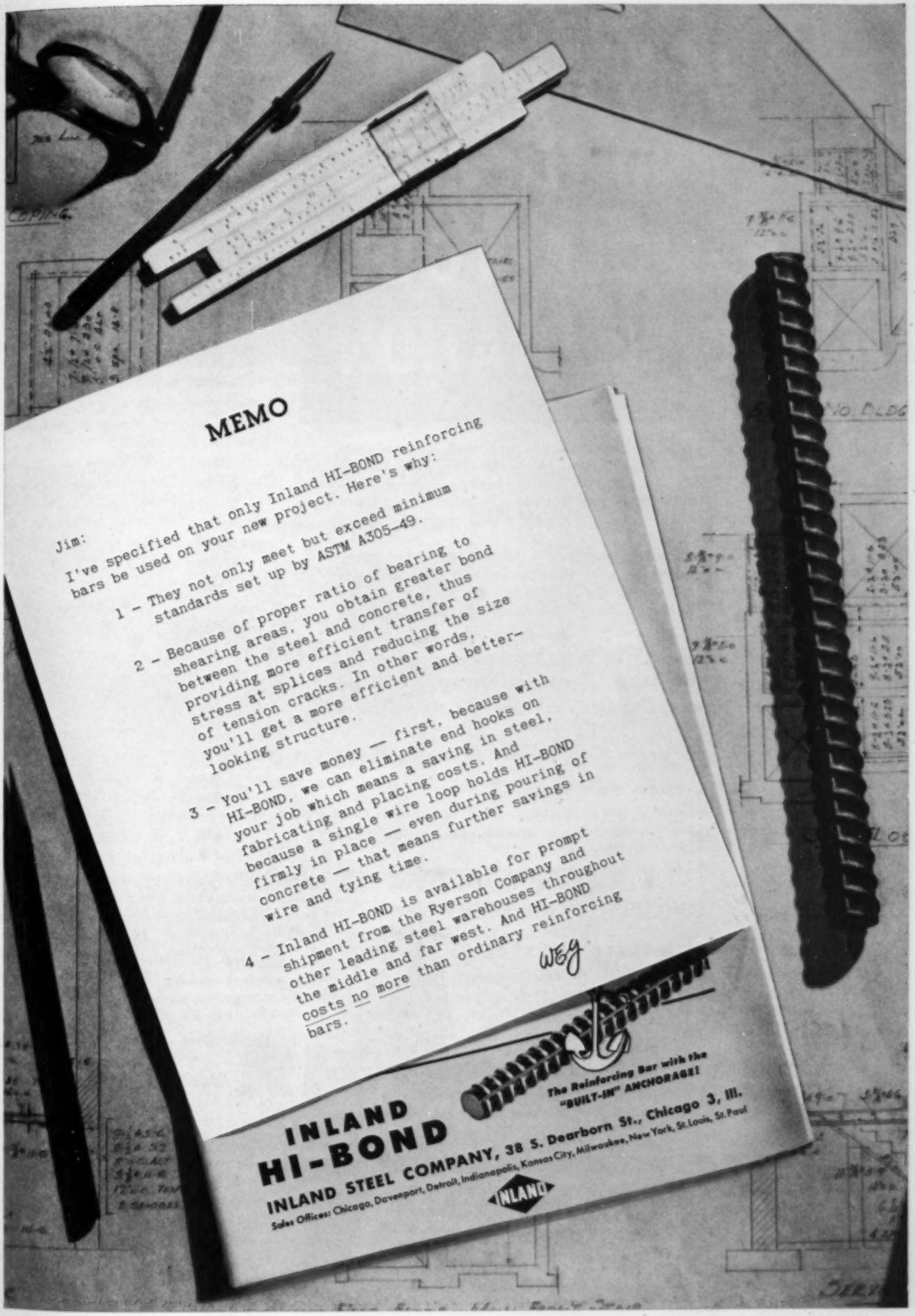
• Paul Windels heads the Regional Plan Association as president for this year. Other officers are: Thomas S. Holden, C. McKim Norton and Harold S. Osborne, vice presidents; Earl B. Schwulst, treasurer; and Mabel H. Ward, secretary. Mr. Windels has recently been elected an Honorary Associate of the New York Chapter of the A.I.A.

### OFFICE NOTES

#### *Offices Opened*

William Beckett, A.I.A., announces the opening of his offices for the practice of architecture and related design at 9026 Melrose Ave., Los Angeles 46, Calif.

(*Continued on page 170*)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## THE RECORD REPORTS

(*Continued from page 166*)

Edward Twiss Dunlap, A.I.A., has opened offices for the general practice of architecture at 1656 33rd St N.W., Washington, D. C., and "Edlee," Bethesda 14, Md.

Fraioli-Blum-Yesselman, Consulting Engineers, announce the opening of their structural engineering office, 113 W. 42nd St., New York 18, N. Y. Members of the firm are Joseph L. Fraioli, Werner Blum, and Joseph B. Yesselman.

Clayton Kantz, Architect, has opened offices at 1739 Yuba St., Redding, Calif.

Charles E. King, Architect, announces the opening of offices for the practice of architecture and design at 19a N. Illinois St., Belleville, Ill.

Charles B. McElroy, A.I.A., has opened an office for the practice of architecture at Wise, Va.

Vincent Pellegrino announces the opening of his office for the practice of architecture at 26 Court St., Brooklyn 2, N. Y.

### *New Firms, Firm Changes*

Richard Barancik, formerly assistant to the head architect at the Chicago Housing Authority, has announced the opening of his own architectural firm, Richard Barancik & Assoc., 919 N. Michigan Ave., Chicago, Ill. Richard Conte is associated with Mr. Barancik.

Thomas D. Broad and Donald S. Nelson announce the association with them of W. J. B. Sullivan, architect, as chief of building planning, and S. M. Melton, educator, as educational plant adviser, in the firm of Broad and Nelson, Architects-Engineers-Planners, Reserve Loan Life Bldg., Dallas 1, Tex.

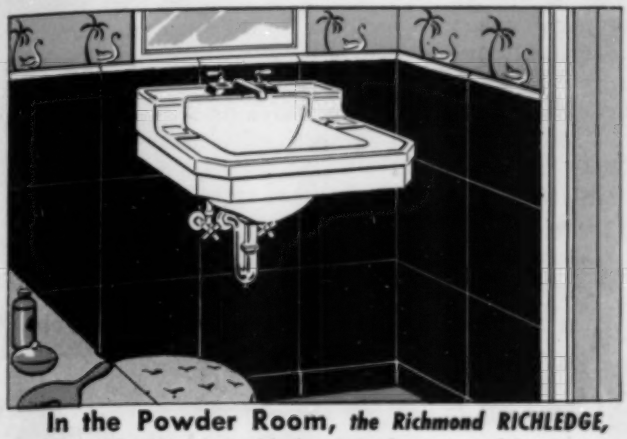
John H. Cline Jr., Civil Engineer, and J. Austin Zerkle, Architect, announce the formation of a new partnership, Cline & Zerkle, with offices in the Pacific Bldg., 610–16th St., Oakland, Calif.

Coolidge Shepley Bulfinch & Abbott of 122 Ames Bldg., Boston, Mass., announce that Joseph P. Richardson has been admitted to partnership.

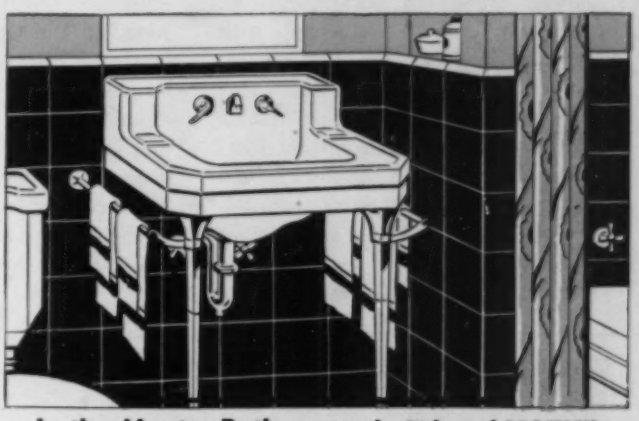
Incorporation of Robert Sidney Dickens & Associates, Chicago design firm, and a change in name to Dickens, Inc., has been announced by R. S. Dickens, president and chairman of the board. Robert H. Askren is vice president in charge of sales.

(*Continued on page 172*)

# Richmond's at Home all through the House!



**In the Powder Room, *the Richmond RICHLEDGE,*** Plate #G-152. All the big lavatory features and beauty at a budget price. A compact wall-hung china unit to fit the smallest bathrooms. Chrome-plated legs and towel bars optional. In 2 sizes: 18" x 15"; and 19" x 17".



**In the Master Bathroom, *the Richmond BROMLEY,*** Plate #G-132. Smart and modern—will glamorize any bathroom. A shelf-back, square bowl vitreous china lavatory with front overflow and anti-splash rim. Chrome-plated legs and towel bars optional. In 2 sizes: 22" x 19"; and 20" x 18".

**In the Kitchen, *the Richmond SERBIN,*** Plate #1585. A handsome ledgeback acid-resisting enameled cast-iron sink with double drainboard and double compartment. Ideal for base cabinet installations in the most modern kitchens. Drilled for deck-type supply fittings with hose and spray.

**In the Smaller Kitchen-Dinette, *the Richmond STRATTON,*** Plate #2110. A beautiful enamel acid-resisting cast-iron flat-rim sink for built-in counter top installations—one of the fine Richmond line of quality sinks. Drilled for supply fitting with hose and spray.

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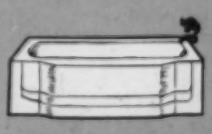

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## THE RECORD REPORTS

(*Continued from page 170*)

Nairne W. Fisher and Daniel C. Bryant have formed a partnership, with offices at 79 W. Monroe St., Chicago, Ill.

Frederic R. Harris, Inc , Consulting Engineers, announce the association with them of Walter D. Binger, Consulting Engineer. Mr. Binger, former vice president of City Investing Co., will continue as consulting engineer for the company.

Hugman-Silber, Architects, wish to announce the dissolution of their association and the separate continuance of each in the practice of architecture as Robert H H. Hugman, 107½ W. Commerce St., San Antonio 5, Tex., and Paul G. Silber & Co , 1919½ Cincinnati Ave., San Antonio 1, Tex.

George S Kocher and Hollis Logue announce their association for the practice of architecture as Kocher & Logue, 246 S First St., San Jose, Calif.

Samuel E. Lunden, Roger Hayward and Ben H. O'Connor announce their association as partners for the practice of architecture under the firm name of Lunden, Hayward & O'Connor, Architects, with offices at 520 Security Bldg., 510 S. Spring St., Los Angeles 13, Calif.

Metcalf & Eddy, Engineers, with offices in the Statler Bldg., Boston, Mass., and at 111 Butter St., San Francisco, Calif., announce the admission to the firm as partners of Scott Keith, John W. Raymond Jr. and Russell J Rice.

Charles F. Neergaard and Dr. Allan Craig, Consulting Service in Hospital Planning, Organization and Management, announce that Dr. Harvey Agnew has become a partner in the firm, which will be known as Neergaard, Agnew & Craig. A divisional office is being opened at 134 Bloor St. West, Toronto, Ont., with Dr. Agnew in charge. Helge Westermann, A.I.A., is an associate of the firm. Dr Agnew, who will continue on a part-time basis as director of the School of Hospital Administration of the University of Toronto and until July as editor of the *Canadian Hospital Journal*, was executive secretary of the Canadian Hospital Council from its inception in 1931 until his recent resignation, and he was instrumental in the establishment of the School of Hospital Administration at Toronto two years ago.

Formation of the consulting engineering firm of R. R. Popham Engineer has been announced. The firm's roster includes architects as well as mechanical, electrical, structural, civil and chemical engineers.

Ramey, Himes & Buchner, Architects, of Wichita, Kans., announce the opening of a Tulsa office for consultations. The address of the new office is: 1437 S. Boulder, Tulsa, Okla

Robert P. Simon and Gerhard Rettberg have announced the establishment of the architectural firm of Simon & Rettberg, 406 S. Russell, Champaign, Ill.

The office of York and Sawyer, Architects, of 101 Park Ave., New York, N Y., and 1308 18th St. N. W., Washington, D. C., announces the admission to general partnership of Russell Colean and Frederick H. Voss. Admission to the firm of Edward J. Olivine and Harry R. Allen as associates also has been announced

(*Continued on page 174*)

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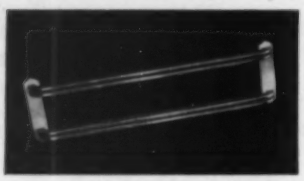

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fabricated from expanded metal.

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having flat top with die-cut grille.

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having sloping top with die-formed louvered grille.

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Three styles of enclosures are available as illustrated.

*Fedders Wall Radiation* for steam and hot water lines is available in lengths from 2 to 12 feet in 6 inch increments. 38 and 50 fins per foot on 1¼ inch tube and 24 fins per foot on 2 inch tubes. Write for catalog WR-C1 TODAY.

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# Quigan

 (*Continued from page 172*)

### *New Addresses*

The following new addresses have been announced:

John Vincent Anderson, A.I.A. Route 2, Woodstock, Ill.

Edwin C. Bruno, A.I.A., 4120 Oakton St., Skokie, Ill.

Norman J Hamill, A.I.A., 408 Lewisohn Bldg. Butte, Mont.

Laitala & Nuechterlein, Architects, 600 Hollister Bldg., Lansing 8, Mich.

Robert Stauber & Associates, 3325 N. Lincoln Ave., Chicago, Ill

### *Neuropsychiatric Hospital*

A new 1000-bed Neuropsychiatric Hospital estimated to cost about $20 million will be built at Pittsburgh for the Veterans Administration. Consisting of 14 buildings and occupying 250 acres, the institution is expected to take two years for completion. The principal structure will be a six-story General Medical and Surgical Building which will be of reinforced concrete frame construction with brick walls. The hospital was designed by the Pittsburgh firm of Prack & Prack in association with Alfred Hopkins & Associates, of New York, and Bowers & Barbalat, of Pittsburgh. Guy B. Panero, Engineers, of New York, did the mechanical design, while Blum, Weldin & Braun, of Pittsburgh, were the civil engineers and Ralph Griswold, also of Pittsburgh, did the landscape design.

### *Venezuelan Super-Highway*

The famous climb in a careening taxi along an old Spanish trail from the seaport of La Guaira to Caracas will soon be replaced by a huge engineering project with the construction of a new $30 million super-highway through the mountains by the Venezuelan government. Three steel bridges and a tunnel blasted through the mountains will replace the former thrill ride. Construction will take approximately two and a half years.

*Above: Paul Windels, recently elected as 1950 president of the Regional Plan Association, has also been named an Honorary Associate, New York Chapter, A.I.A.*

### *ADDENDUM*

Miss Lydia C. Davis of Santa Ana, Calif., was landscape architect for the new campus for Santa Ana Junior College, which was featured in an article in the December issue of the RECORD. Miss Davis' name was inadvertently omitted from the list of credits. Ralph C. Flewelling and Walter L. Moody were the architects.

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General Service Building, University of Michigan, Ann Arbor.
Harley, Ellington & Day, architects and engineers;
R. L. Spitzley Heating Company, heating contractors;
Spitzley-Rettenmier Company, ventilating contractors, all of Detroit.

Money is wasted when unoccupied rooms are heated to 70 or 72 degrees. That is why buildings, in which certain areas are occupied at odd hours, should be equipped with Johnson *Dual* Temperature Control, the built-in, automatic "brain of the heating system." Johnson *Dual* Control maintains proper occupancy temperatures in spaces which are in use and, at the same time, insures reduced economy temperatures in all vacant rooms.

Both economy and comfort are assured in the General Service Building at the University of Michigan where 588 Johnson *Dual* Thermostats provide individual room control. The thermostats are interconnected in four groups, according to the normally-expected usage of the various rooms in the building . . . (1) offices, (2) student publications, (3) broadcasting studios and (4) all other rooms.

The *Dual* thermostats in any group are shifted, from a central point, to operate at reduced temperature during the hours when the rooms in that group are not expected to be in use. If any room should be occupied when its group has been set for reduced temperature, merely pushing a button on the *Dual* thermostat resets that room to the normal comfort level. All unused rooms in the group remain at the reduced economy temperature. What a saving of fuel (or of central station steam)! It is all done automatically by Johnson in Michigan's General Service Building . . . including temperature and humidity control equipment applied to four ventilating systems for the offices and studios.

Johnson brings to the solution of small temperature control problems the same broad experience and understanding that are needed for larger heating systems, such as that at Michigan. No one wants to waste fuel. Call a nearby Johnson engineer. A consultation, which carries no obligation, will prove exceedingly valuable in your plans for reducing your fuel budget. JOHNSON SERVICE COMPANY, Milwaukee 2, Wisconsin. Direct Branch Offices in Principal Cities.

**JOHNSON** *Automatic Temperature and Air Conditioning* **CONTROL**

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CANADA (*Continued from page 16*)

### *1950 Construction May Equal 1949 mark, Official Asserts*

"Canadians may be able to maintain in 1950 the high volume of construction achieved in 1949," Dr. O. J. Firestone, director of economic research for the Department of Trade and Commerce, said in a recent address before the Eastern Ontario Lumber Dealers Association.

"In engineering the prospects are bright, with many utilities and most governments expecting to spend a bit more in 1950 than in 1949.

"In general construction the trend is mixed. There may be less money spent on factory buildings and possibly a little less on commercial buildings. More is likely to be spent on institutional and government buildings, however.

"Housing is the great question mark. But the outlook is for the volume of house building in 1950 to come close to the 1949 peak."

### *Construction Volume for 1949 Sets Record at $1140 Million*

Figures showing that in 1949 $1140 million of construction contracts were awarded in Canada (plus some $5 million in Newfoundland) have been released by MacLean Building Reports Ltd.

These figures represent an increase of 19 per cent over 1948 and a new, all-time record.

Factory awards showed the greatest increase, reversing the 1948 pattern when that category was the only one to drop below the 1947 level. Other categories shared the upward trend, with engineering registering the second highest percentage gain.

### *Promise and Problems of 1950 Discussed by Trade Minister*

Capital investment in Canada in 1950 will reach close to the 1949 mark of something over $3 billion, according to a forecast by Trade Minister Howe.

Mr. Howe expects institutional building, especially hospital construction, to continue high. Largely because of building of oil pipelines, he anticipates an increase in the utilities category.

Declines are forecast in agriculture, manufacturing and commercial business. Residential construction is expected to attain nearly the 1949 level.

### *Building Loans Up*

NHA loans totaling $158,500,000 went to Canadian builders in 1949, an increase of $50 million over 1948, Central Mortgage and Housing Corp. reports.

The loans went into construction of more than 28,700 houses, 8000 over the 1948 total.

### *Industry Gets Tax Relief*

Under a new ruling announced by Deputy Minister V. Scully of the Department of National Revenue, industries no longer pay income tax on money invested in plant. Specific rates have been set for depreciation and depletion.

The ruling came a month after a speech by President and General Man-

(*Continued on page 178*)

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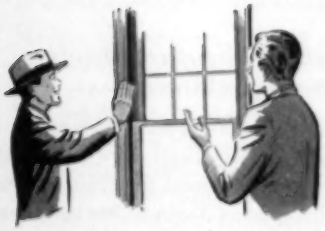
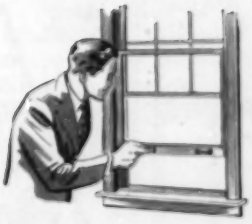
# Why Silentite Windows ...make happy home owners!



### WEATHER STAYS *OUTSIDE*

Patented "floating" weather-strips—exclusive Curtis-designed weather-stripping at head, meeting rail, and sill—*plus* the insulating value of a *wood* window. That's why Silentite windows are weather-tight—dust-tight. Wind infiltration is reduced to a minimum—comfort stays *in* while the weather stays *out.*



### EASY YEAR-ROUND OPERATION

No tugging, no straining, to open a Silentite window. Silentite spring suspension keeps these windows operating easily through constant use. No rattling or banging either—and, of course, no weights, cords or pulleys. Curtis also makes Silentite in casement units.

### MODERN BEAUTY IN 12 STYLES

Slender mullions—wide glass areas—beautiful Mitertite trim—these qualities put Silentite windows at the head of the beauty parade. Silentite windows are available in 12 sash styles—all economical because they are quickly installed. Silentite is a popular choice with women.

*Curtis makes a complete line of architectural woodwork for the modern home. Make your next house "all Curtis."*

1865 CURTIS WOODWORK
SILENTITE
PRE-FIT
the "insulated" window

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Please send me book on *Silentite windows,* including casements.
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*Address*.....

*City*.....*State*.....

CANADA (*Continued from page 176*)

ager J. M. Breen of Canada Cement Co. of Montreal, in which Mr. Breen asserted that tax allowance for depreciation is much too low in view of present costs.

"When the allowances were first set forth they were fairly satisfactory," Mr. Breen said, "but costs have more than doubled since then. In consequence every industry I know complains of these low depreciation allowances."

### *Institute Offers Fellowship*

Conditions for award of the Royal Architectural Institute of Canada College of Fellows Scholarship have been announced.

The scholarship will be open to those who have graduated from the recognized schools of architecture in Canada during the past five years, who are Canadian citizens, and who have taken their entire architectural training in Canada.

The $1500 award is to be used for travel, study and research.

### *Canadian Architects Hold 43rd Annual Assembly*

Hon. Mr. Justice E. K. Williams, chief justice of the Court of King's Bench for the Province of Manitoba, was guest speaker at the annual dinner of the Royal Architectural Institute of Canada held February 25 at the Fort Garry Hotel, Winnipeg, Man.

The dinner climaxed the three-day 1950 Assembly of the R. A. I. C., the 43rd annual meeting of the organization.

The program for the Assembly included a manufacturers' exhibit and two seminars. A technical seminar on beamless floor construction was conducted by three engineers: Prof. Jack Hoogstraten, University of Manitoba; J. Sumner, chief engineer, Green-Blankstein-Russell & Associates; and C. V. Antenbring, manager, Cowin & Co. A cultural seminar was in charge of Prof. Dick Bennett of Chicago.

### *Construction Group Elects*

Robert Drummond of Toronto has been named president of the Canadian Construction Association. P. G. Wilmut of Montreal is vice president.

### *Hugh P. Sheppard Heads Ontario Architects*

Hugh P. Sheppard of Windsor has been elected to head the Ontario Association of Architects for 1950, and Earle L. Sheppard of Toronto has been named vice president.

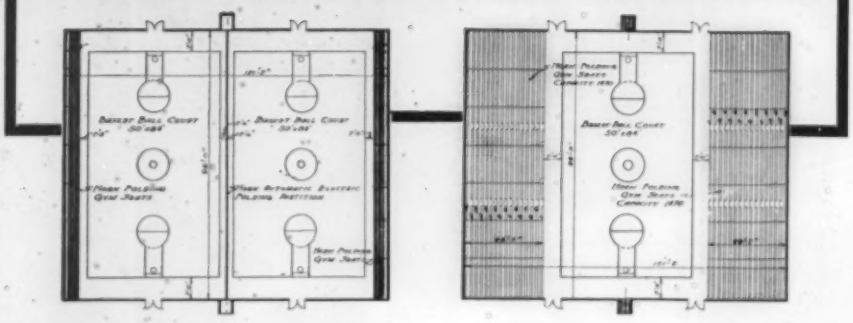
Other officers are: H. Gordon Hughes, Ottawa, treasurer; Charles Lenz, Hamilton (retiring president), J. V. Connor, London, and Gordon S. Adamson and F. H. Marani, Toronto, council.

H. H. Madill of Toronto has been appointed to head the registration board, with John M. Kitchen of Ottawa as vice chairman. John D. Miller of Toronto was named as secretary of both council and registration board.

The association at its Diamond Jubilee Dinner heard an address by Sir Alexander Clutterbuck, United Kingdom High Commissioner to Canada, who urged cooperation with other members of the free world as the way to salvation

(*Continued on page 180*)


UTILIZE YOUR GYM SPACE WITH HORN

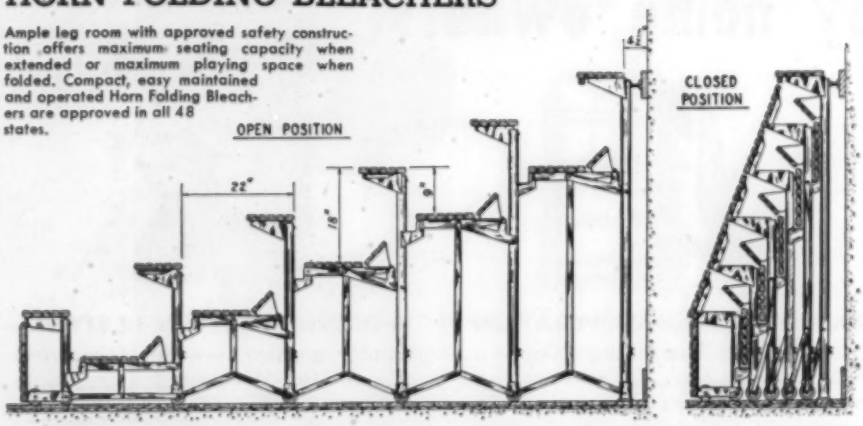


Two regulation basketball courts separated by a Horn Automatic Electric Folding Partition. Horn Folding Bleachers in folded position.

HORN FOLDING BLEACHERS extended increases the seating capacity for the BIG GAME! Horn Folding Bleachers will meet your requirements.

HORN FOLDING BLEACHERS

Ample leg room with approved safety construction offers maximum seating capacity when extended or maximum playing space when folded. Compact, easy maintained and operated Horn Folding Bleachers are approved in all 48 states.




| ROWS | FLOOR SPACE IN USE | FLOOR SPACE *CLOSED | **HEIGHT | ROWS | FLOOR SPACE IN USE | FLOOR SPACE *CLOSED | **HEIGHT |
|---|---|---|---|---|---|---|---|
| 3 | 4′ 9″ | 1′ 8¾″ | 3′ 0″ | 12 | 21′ 3″ | 4′ 3½″ | 9′ 9″ |
| 4 | 6′ 7″ | 2′ 0½″ | 3′ 9″ | 13 | 23′ 1″ | 4′ 6½″ | 10′ 6″ |
| 5 | 8′ 5″ | 2′ 3½″ | 4′ 6″ | 14 | 24′ 11″ | 4′ 9⅞″ | 11′ 3″ |
| 6 | 10′ 3″ | 2′ 6⅞″ | 5′ 3″ | 15 | 26′ 9″ | 5′ 1¼″ | 12′ 0″ |
| 7 | 12′ 1″ | 2′ 10¼″ | 6′ 0″ | 16 | 28′ 7″ | 5′ 4⅝″ | 12′ 9″ |
| 8 | 13′ 11″ | 3′ 1⅝″ | 6′ 9″ | 17 | 30′ 5″ | 5′ 8″ | 13′ 6″ |
| 9 | 15′ 9″ | 3′ 5″ | 7′ 6″ | 18 | 32′ 3″ | 5′ 11⅜″ | 14′ 3″ |
| 10 | 17′ 7″ | 3′ 8⅜″ | 8′ 3″ | 19 | 34′ 1″ | 6′ 2¾″ | 15′ 0″ |
| 11 | 19′ 5″ | 3′ 11¾″ | 9′ 0″ | 20 | 35′ 11″ | 6′ 6⅛″ | 15′ 9″ |

SINCE Horn 1909

*Dimension includes 4½ in. space between top seat and wall.
**Height in open position same as closed. For Bleachers higher than 20 Rows write for complete details and dimensions.

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# New MAGNA-FLO 75"

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***Two Lamps do the Work of Four! Instant Start! No Starters Needed! Lower Operating and Maintenance Cost!***

Modern streamlined lighting of factories and shops may now be obtained with these new individual Benjamin "Magna-Flo 75" Lighting Units or with the continuous lines of light of the new Benjamin "Lite-Line 75" System. These units use most efficiently the big, new Slimline 75-w fluorescent lamps—8 feet long, 1½ inches in diameter—which have a greater light output than any other fluorescent lamp.

### Higher Efficiency

With Benjamin "Magna-Flo 75" it is possible to obtain from 7% to 10% more light on the working surface than is secured from the same wattage by other comparable systems. The lamps themselves give 10% or more lumens per watt. Two sockets take the place of four in this longer unit.

### Lower Operating Cost

"Magna-Flo 75" operates with extra economy because there are fewer lamps to maintain—fewer lamps to replace. There is extra economy, too, in instant starting because no starters are needed and related maintenance problems are eliminated. The single-pin base construction of the new Slimline Lamps saves time in installation and replacement. New "Twin-Turret" heavy-duty lampholders are especially designed to lock these single-pin lamps securely in place and prevent their dropping out.

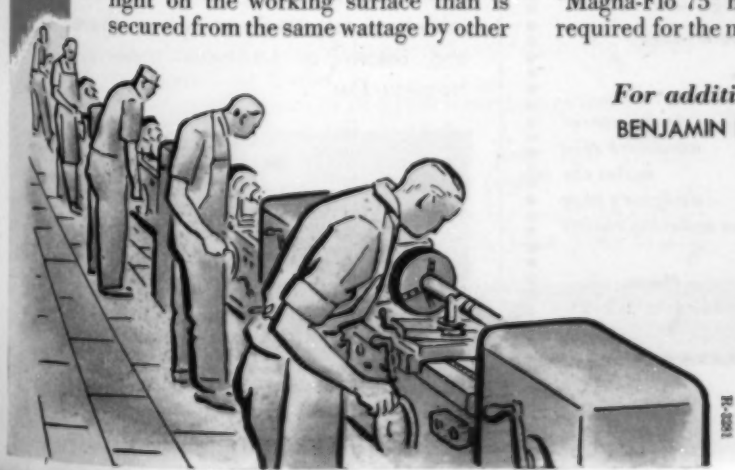
### Extra Strength and Safety

"Magna-Flo 75" has the extra strength required for the most satisfactory operation of these big, long lamps. There is extra strength in the one-piece, heavy-duty channels, in the sturdy channel coupling and in the high quality porcelain enamel steel reflectors.

### Benjamin "Life-Time" Porcelain Enamel Reflectors

Benjamin Porcelain Enamel Steel Reflectors are standard equipment with "Magna-Flo 75". Porcelain Enamel is the ideal reflecting surface for the new Slimline Lamps. It has a high reflection factor (82%) and its diffusing characteristics help to improve the quality of the lighting and minimize glare.

Porcelain Enamel cuts maintenance costs, too, as it will not discolor or deteriorate under adverse atmospheric and operating conditions. Furthermore, its original high reflectivity is easily maintained by soap-and-water cleaning.



*For additional data send for Bulletin No. Ad 5612. Write:*
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BENJAMIN

"Magna-Flo 75"

FLUORESCENT LIGHTING UNITS

Distributed Exclusively Through Electrical Wholesalers

CANADA (*Continued from page 178*)

in the crucial years just ahead. Beyond the immediate danger period, Sir Alexander predicted "brilliant years" of progress.

Sir Alexander's address climaxed a busy two-day convention. Discussion of various aspects of the public housing program made possible by new federal legislation was an important feature of the convention, with U. S. and Canadian authorities contributing. Exhibits of new building materials and methods, architectural photographs and art work were on display; and a hobby show on architects' leisure pastimes revealed talents as varied as pie-making and model railroading.

### *Engineers Elect Executives*

Newly elected president of the Association of Professional Engineers of Ontario is Edward V. Buchanan, general manager of the London, Ont., Public Utilities Commission and of the London Railway Commission.

Also named to the 1950 executive are: W. H. M. Laughlin and O. D. Johnston, vice presidents; Col. T. M. Medland, executive director; and Col. J. M. Muir, secretary-treasurer. All are Toronto residents.

The association's new council represents the five branches of professional engineers. Among its members are 7000 Ontario graduate professional engineers and 3500 student engineers who are affiliate members.

### *Further Wage Increases Held Invitation to Unemployment*

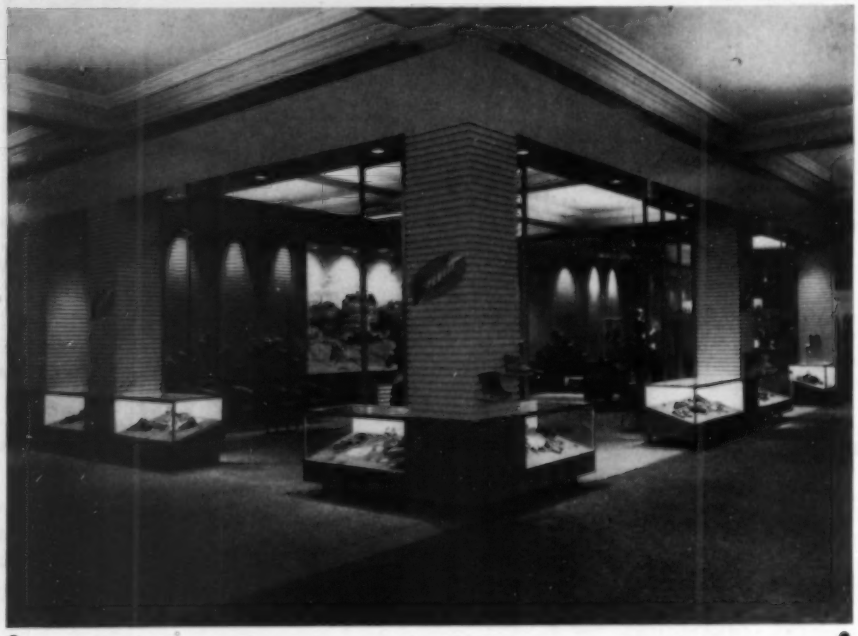
Subscribing to the theory that the best defense is offense, Retiring President Allan C. Ross had a few words to say at the annual convention of the Canadian Construction Association on the subject of anticipated labor demands for higher wages.

"I firmly believe," he declared, "that any further increases in our wage structure will stop or delay many a project, and that unemployment and disruption will follow."

Increased construction costs, Mr. Ross asserted, are due "very, very largely . . . to increased wages and lowered productivity, both on the job site and in materials production."

(*Continued on page 182*)

*Brevitt Shoe Salon at B. Altman & Co., New York* — *Designer: John Muller*



# *THE CASE OF THE WANDERING SHELVES*

PARDON our peaked hat and British accent. They're just props anyway, to introduce a recent "case" we solved successfully. It started with our assignment to do the new Brevitt Shoe Salon at B. Altman & Co. Brevitt is a top-notch English shoe concern.

And here's where Bergen's woodwizardry came to the rescue. The designer's plans called for display shelves that could "wander" all over the columns and background panels of the Salon. Shelves that could be easily positioned to reflect changing display ideas. It was elementary, Watson. Bergen aged-in-the-wood craftsmanship always solves these puzzling cases with an elan and dispatch that leaves bystanders shaking their heads in wonderment.

But why wonder about Bergen's unique position in the field? Call us . . . write . . . or telegraph. We will see you with case histories that make fascinating material. And that's because, to Bergenize is also to be budget-wise.

**Write to Dept. A for our Portfolio of "Jobs Well Done." It's worth seeing**

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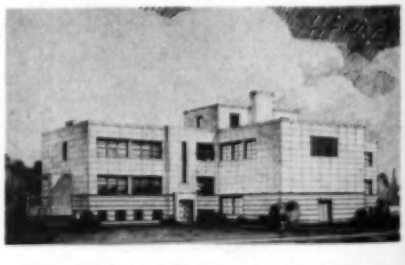
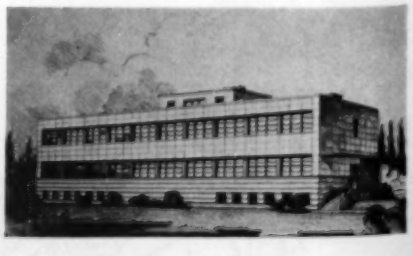
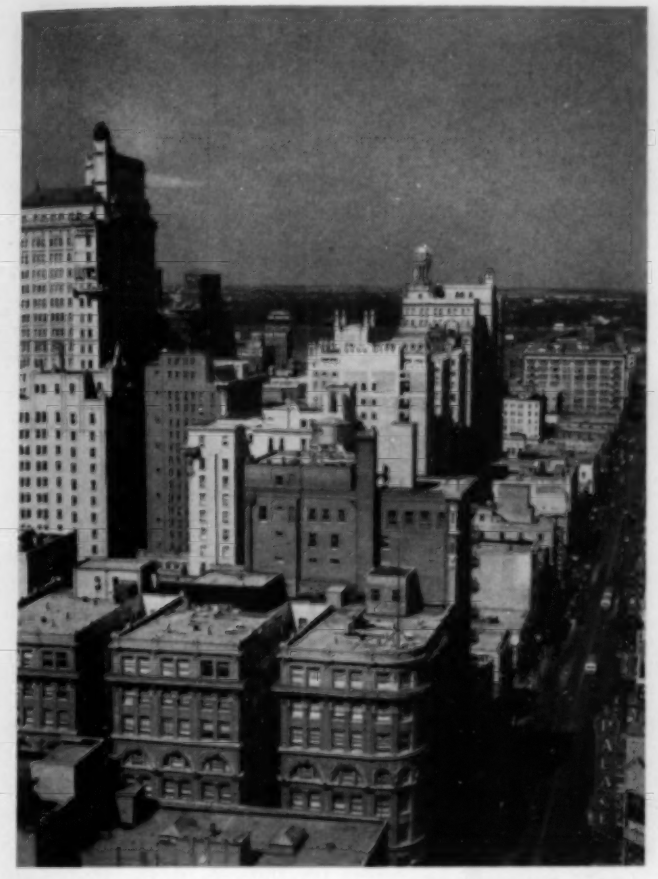


*William R. Souter & Associates are architects for a $575,000 nuclear research laboratory (photos of renderings above and below) at McMaster University, Hamilton, Ont.*



## American Blower—a time-honored name in air handling



**In Dallas,** as in other cities, American Blower Air Handling Equipment serves commerce, industry and public utilities. For air handling data in the Dallas area, call American Blower —Central 5518. In other cities, consult your phone book.

**Look before** you buy. Comparison tests prove the superiority of American Blower Products. There's a big difference in quality, design, quietness, operating costs and efficiency between American Blower and other air handling equipment.

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SPECIFYING fine, quality equipment for a job is a pleasure for every architect.

At times, however, it's really a problem to know whose equipment is right for the job. And on that score we'd like to suggest these five points to guide you in your selection of air handling equipment:

(1) Is the proposed equipment built by a reputable manufacturer with years of experience?
(2) Has the manufacturer facilities for research and testing?
(3) Are units tested in accordance with the Standard Test Code?
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If you consider the merits of the air handling equipment you are about to specify on your jobs in the light of these points, we're certain you'll agree that American Blower offers more value per dollar invested.

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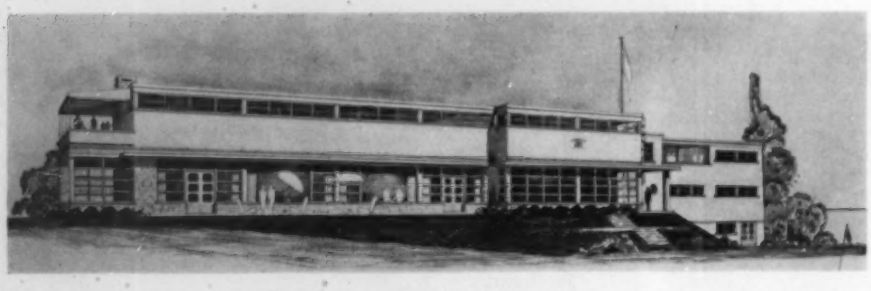
CANADA (*Continued from page 180*)



*Plans for Summerlea Golf and Country Club, Lachine, Que., call for two-story building, 200 by 40 ft., with steel frame, stone and stucco walls. Architect is L. C. Meadowcroft*

Mr. Ross had a word for employers as well. "Good keen competition is to be desired and welcomed, but cutthroat competition that is uneconomic leads to bankruptcy and unemployment," he cautioned.

On the housing shortage, Mr. Ross said: "Housing for the low income group is a troublesome problem that has existed throughout the world from time immemorial, and your association believes it can only be handled, and probably only partially at that, by some form of government subsidy."

### *Comments*

• Writing in the Daily Commercial News 1950 Building Forecast, A. J. Hazelgrove, retiring president of the Royal Architectural Institute of Canada, has some pertinent remarks to make on Canadian architecture.

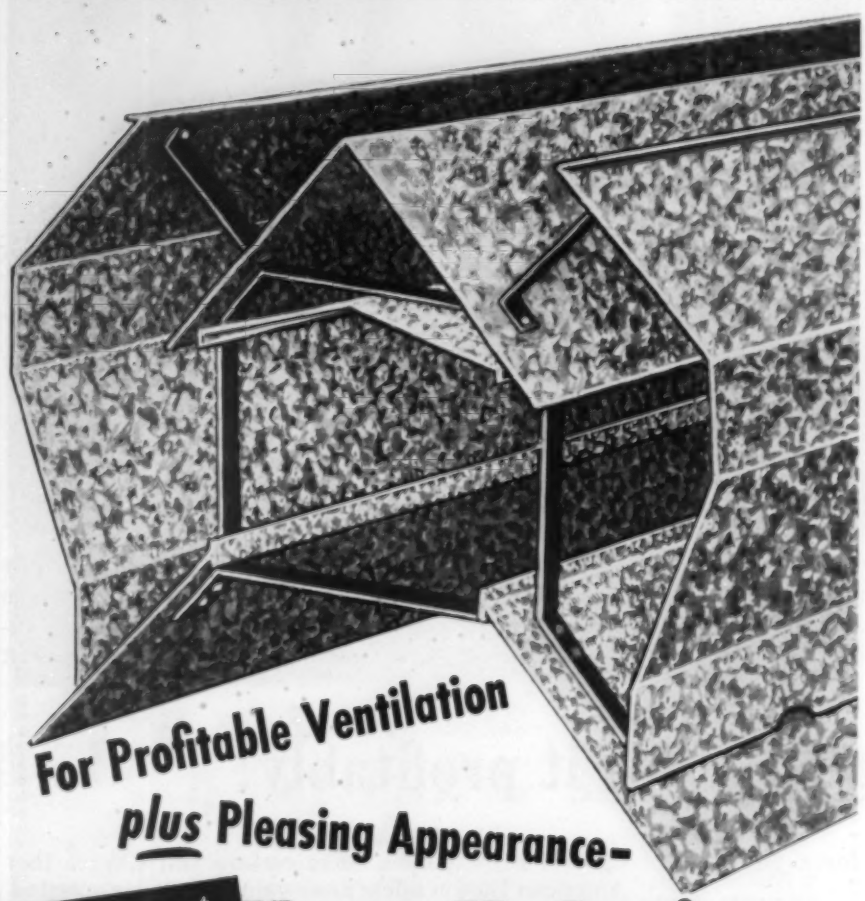
"Why should architecture develop in a manner distinctively Canadian when requirements and function develop forms similar to those which meet parallel requirements elsewhere? The national characteristics of the architecture of the past were national because the outlook of the people was geographically limited. Local crafts developed and perfected the national ideas. These conditions which thus led to the development of distinctively national architecture are no longer with us. We live in a world where distance is measured in time rather than space, where all who will are in full and constant communication by both the spoken and the printed word.

"The insularity which developed the glories of ancient Greece in literature and in architecture was an insularity which has no counterpart in modern times. Today architects the world over are producing work which is vital and related to the present-day needs of living man. Forms are being shaped which bear no reference to the architecture of the past. Granted then that needs are universal, of what earthly use is it to force architectural forms into a national mould merely to satisfy a national ego?"

Mr. Hazelton concludes: "A distinctive Canadian architecture is improbable, if not impossible."

• Every five-room bungalow that is built involves an expenditure of about $1000 for roads, water, sewer and other

(*Continued on page 184*)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CANADA (*Continued from page 182*)

services, and another $1000 for schools," declared D. B. Mansur, president of the Central Mortgage and Housing Corp., in a talk before members of the Canadian Construction Association.

Turning to housing prospects, he said that for 1949 Canada will show more new houses completed, in relation to population, than any other country. Mr. Mansur pointed out that the cost of a house to the homeowner has not increased appreciably over the past year and that, in the higher-priced field, prices are somewhat lower, because demand in that category appears to be dropping.

He also reminded his listeners that while the cost of the average house is about twice as much today as 10 years ago, the income of the average individual is more than twice what it was in 1940.


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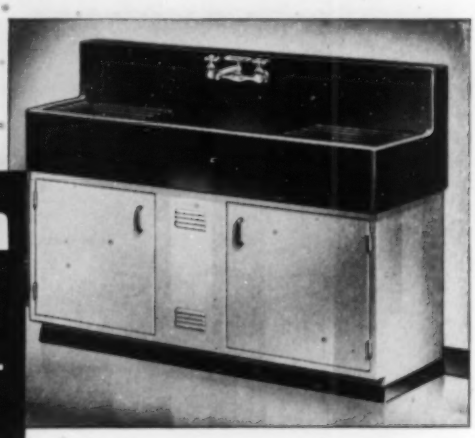

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• James Govan, architect and engineer, has been lauded for his "pioneering" efforts in achieving general recognition in Canada for insulated walls and windows as a must for every building.

Charles Neergaard, New York consulting engineer, told members of the Ontario Hospital Association that he learned the value of insulation from Mr. Govan when they collaborated on the Prince Edward Island Hospital in 1932.

"Many of our buildings in recent years," Neergaard said, "have substantiated Govan's findings that the reduction in the heating plant saves enough money to meet the additional cost of insulating the walls and double-glazing the windows."

• J. C. Parkin of John B. Parkin Associates suggests that paint manufacturers should label their cans with the light reflecting value of their contents.

In a speech before the Toronto Paint Club, Mr. Parkin pointed out that such labeling would help in the control of "brightness contrasts" of light — "the newest development in functional architecture."

"As well, manufacturers should set up a standard set of colors, as does the British Color Council," Mr. Parkin said, "so that architects can judge paint by its quality, ordering any color by its number."

Mr. Parkin also had a word for all suppliers of the Canadian construction industry: "It is necessary for architect, supplier and painting and decorating contractor to work as a team if Canadian construction is to take an important place in the world."

### *Landlords Increase Rents*

The new Ottawa regulation which allows property owners an 18 per cent rent increase for unheated and a 22 per cent increase for heated self-contained dwelling units is proving popular — at least with property owners.

Since the government announcement, Rental Administration offices across Canada have been busy filling requests for the new offer-of-lease forms.

Most landlords have offered present tenants a lease of 12 months, effective February 1, in accord with the government ruling. Tenants have a 30-day

(*Continued on page 188*)

# *Because this can be 12 different doors*

# ...it costs a lot less

One of 135 Fenestra Doors in Mandeville High School, Flint, Mich. Architect: Bennett & Straight of Dearborn. Contractor: Karl B. Foster, Flint.

The secret is a clever hinge arrangement—plus a muntin, a glass panel and a metal panel. This same beautiful Fenestra* Hollow Metal door can be used: Swing-in or swing-out . . . left or right hand—each with panels of metal or glass . . . with or without a muntin.

It costs a lot less because Fenestra craftsmen can give you the variety you need and still concentrate production facilities on a few basic high-quality types. Naturally, when production waste in time and money is eliminated, quality goes up and cost comes down.

This door is tough—it can be kicked and slammed and still look good. After years of use, a coat of paint will make it like new again.

This door is easy to handle—it swings open and shut smoothly, quietly. That operating balance never changes. Each door is packed with sound-smothering insulation.

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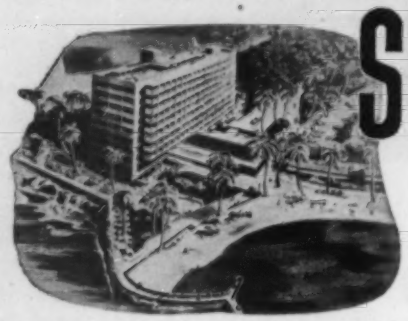

# skylines... by Otis

*Puerto Rico* is the scene of a spectacular achievement in post-war economic recovery. In just five years, OPERATION BOOTSTRAP has attracted over fifty widely diversified industries; launched the world's largest single housing project of 10,000 small homes at Puerto Nuevo; embarked on a multiple hydro-steam electric power program and a $25,000,000 water supply and sanitation system for the Island's 77 communities; increased its school, hospital and health services; and furthered a $25,000,000 a year island paradise tourist program by completing the magnificent 300-room Caribe Hilton Hotel – which joins a fast growing skyline served by 232 Otis elevators.

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## HOTEL MAN WITH A HALO.

Guests can't help praising the velvety-smooth riding elevators in the Biltmore Hotel, New York. There's scarcely any sensation of movement since the elevators have been modernized by Otis.

## HOSPITAL ELEVATORS?

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# THE RECORD REPORTS

## CANADA

(*Continued from page 184*)

think-it-over period, after which they must pretty well accept the new increase or look for other housing.

### *Career Guides Offered In Government Series*

A series of authoritative booklets on Canadian occupations is published by the Department of Labor as a guide to young people in choosing careers.

Most recent addition to the series is "Careers in Natural Science and Engineering," which covers the professions of architecture and engineering.

### *Greek Gods and Architects*

Toronto Architects Mathers and Haldenby probably wish they had never heard of the noble figures of Greek mythology.

It all started innocently enough. The new Bank of Nova Scotia building needed some sort of ornamentation, and the architects felt that such themes as Canada's flora and fauna, natural resources and provincial emblems were somewhat overworked. Instead, they looked to the land of the Parthenon for inspiration.

The impressive models of the gods were scarcely in place when the 'phone calls started. Puzzled businessmen wanted to know the connection between the Olympians and banking. A religious group marked the arrival of Pegasus and Zeus to Bay Street by loudly protesting the use of "heathen mythology." And then an office worker in a building across the street called to object to the forms of goddesses Venus and Hera. Not sufficient realism, he complained!

*Hamilton, Ont., taxpayers have approved construction of a 300-bed convalescent hospital (photo of rendering above) to cost $2,700,000. Architect is J. D. Kyles*

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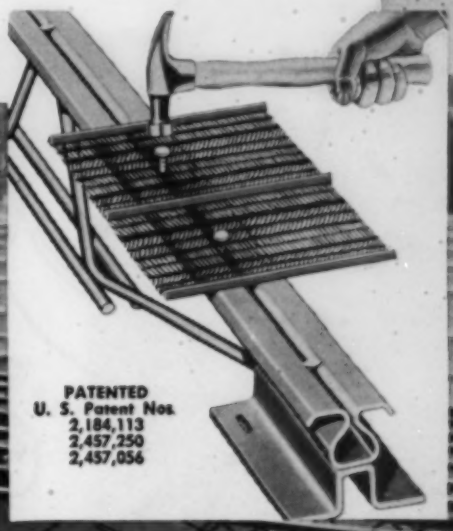

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| | |
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| Orientation, solar data | 401–409 |
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(*Continued on page 192*)

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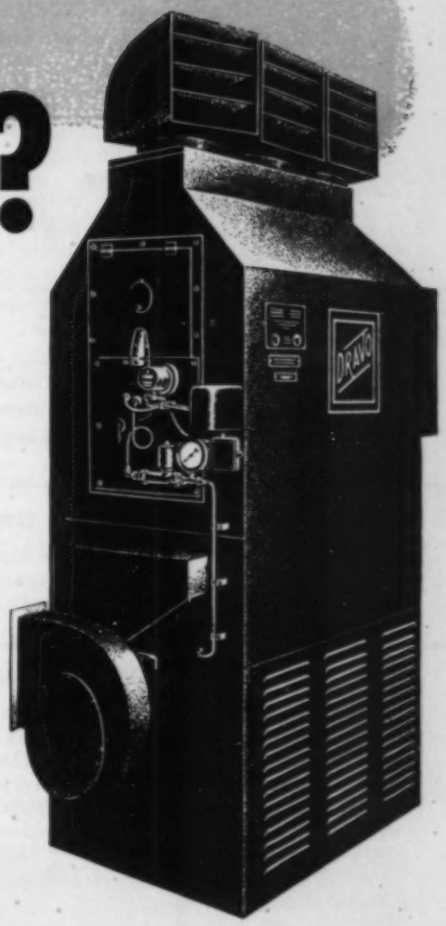


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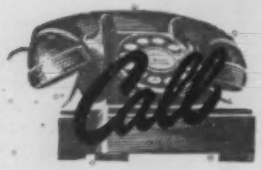


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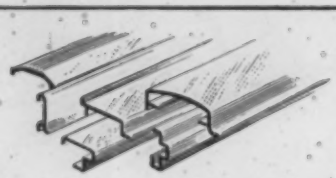

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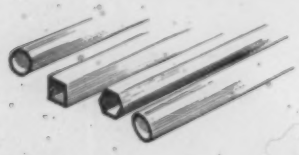

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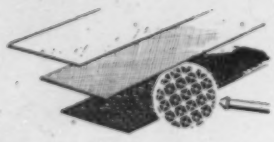

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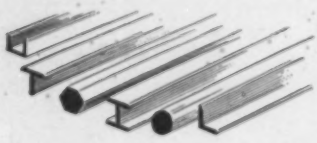

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(*Continued on page 194*)

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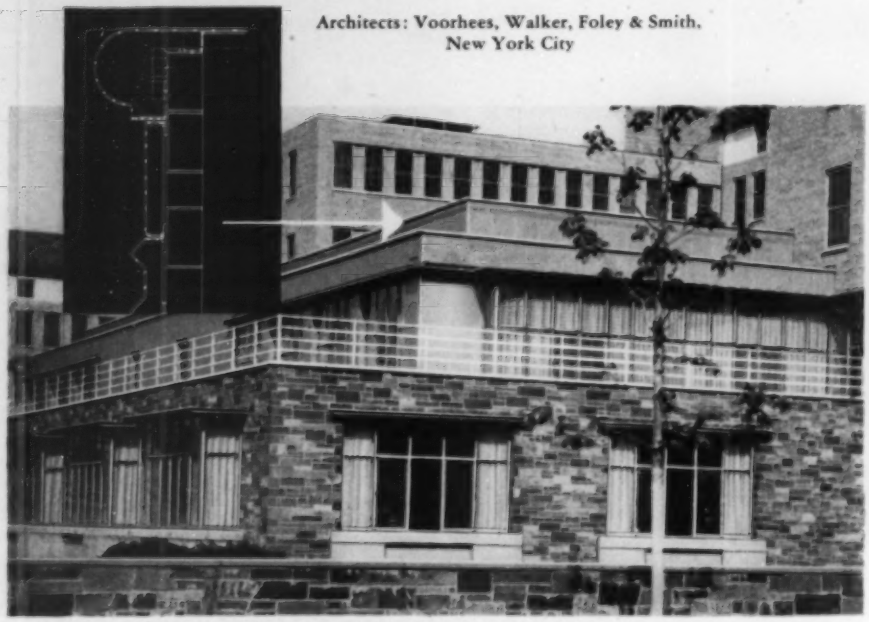

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(*Continued from page 192*)


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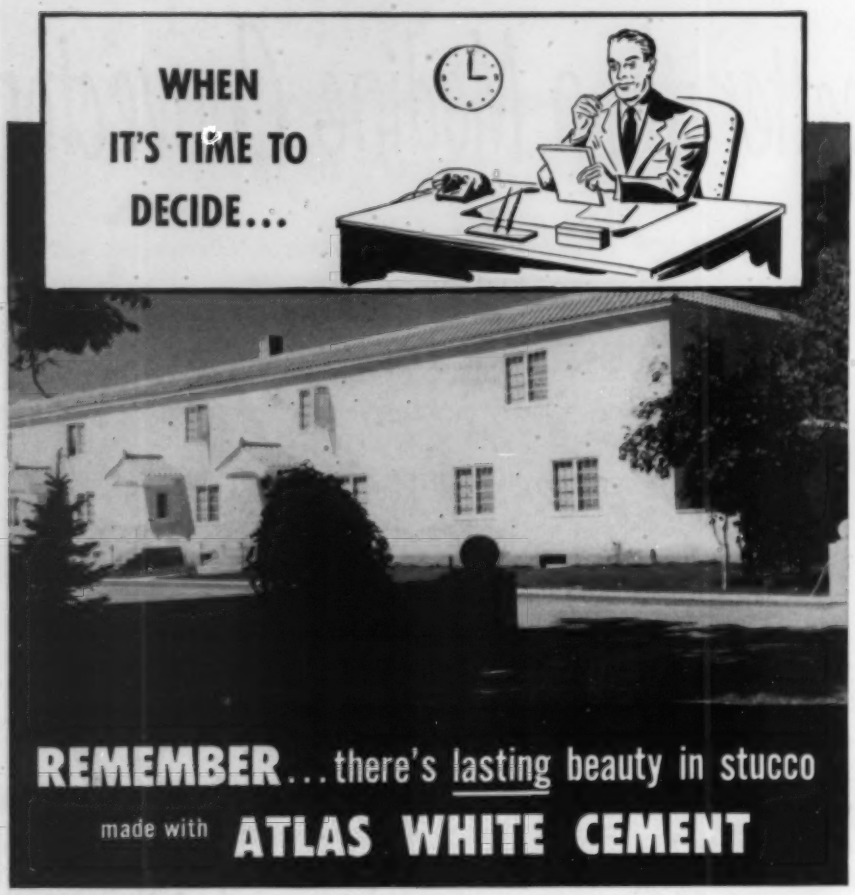


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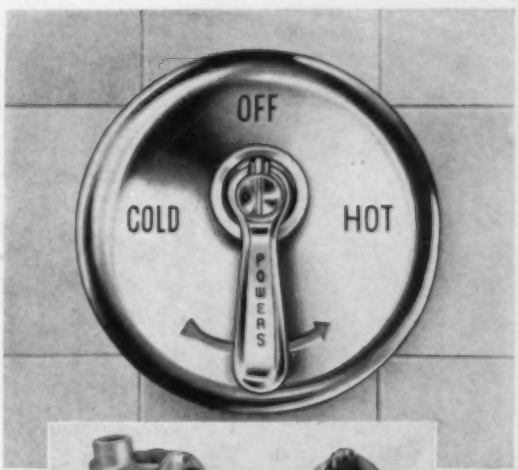

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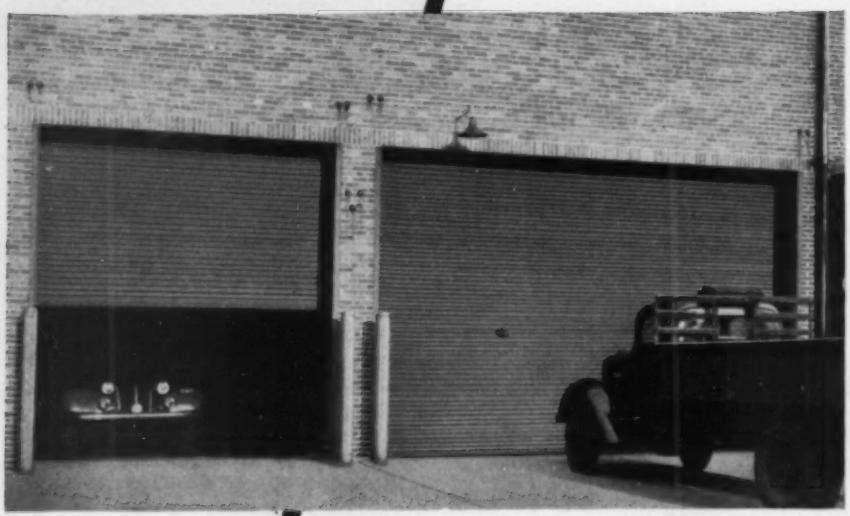

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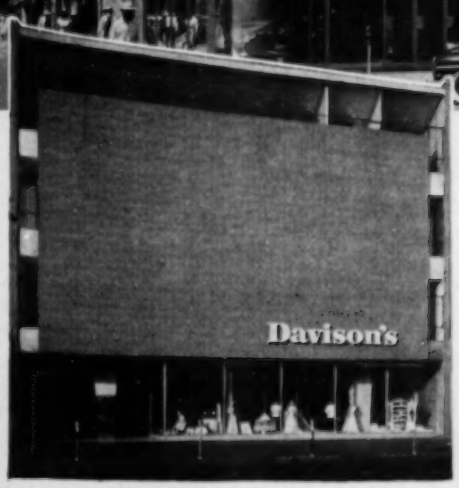


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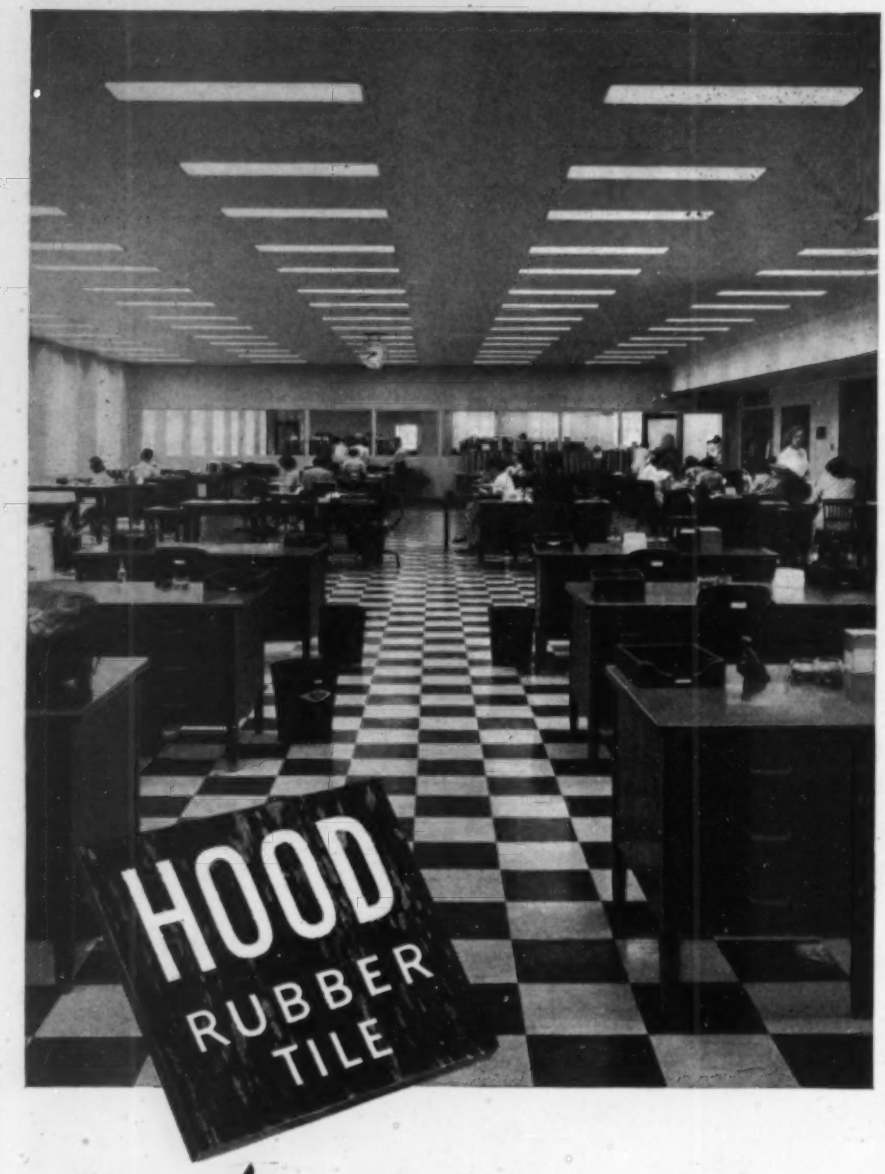


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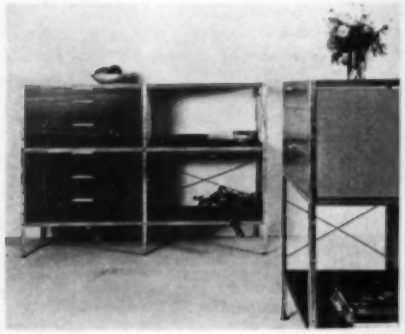

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● Steam or frost kills the main function of a storefront.

Merchants want their stores and merchandise on display in any weather.

To reduce condensation, architects are specifying *Thermopane*® insulating glass for year-round visibility through storefronts. Its need is readily apparent in stores which produce or require high indoor humidity. Condensation resulting from such humidity in winter, blocks the view and presents an unattractive appearance to passers-by.

*Thermopane's* insulation offers other worthwhile benefits for storefronts. Its two panes of glass, with dry air sealed between, reduce heat transfer, help keep store interiors warmer in winter and cooler in summer.

*Thermopane* materially aids air conditioning by reducing load on equipment and by helping keep indoor temperatures more uniform.

To help you in your design work, L·O·F has prepared a set of Don Graf sheets on *Thermopane* which provide full information on heat transfer, condensation points, sound insulation and other data. Write for your file copy. *®

GLASS MAKES IT A VISUAL L O F FRONT

**LIBBEY·OWENS·FORD**

Libbey·Owens·Ford Glass Company, 6635 Nicholas Building, Toledo 3, Ohio.

PRODUCTS
(*Continued from page 202*)

### *Metal Wall Tile*

*Crown Metal Wall Tile* is reported to have a bonded guarantee against rusting, cracking, crazing, chipping or peeling. The tile is made of heavy gage rust-resistant steel, double enameled in a range of colors, or stainless steel in satin or glossy finishes. The product is said to be embossed to the right depth for maximum holding strength, and to have a dappled surface for highlights and sparkle. Ohio Can and Crown Co., 16th & Harsh Ave. S.E., Massillon, Ohio.

### *Drafting Aid*

A triangular scale for architects and engineers made of *Vinylite* plastic strips gripped by an aluminum core, is said to give far longer wear than conventional scales and to be very low in price. The plastic is reported dimensionally stable, and resistant to water, oil, grease and most chemicals. The fins and core are interlocked by a special process to allow for the different expansion coefficients of the two materials. Markings are coated with a Vinylite resin base liquid to prevent rubbing off. Wolsey Co., Inc., 727 Kohler St., Los Angeles 21, Calif.

### *Insulation Board*

A new line of insulation board products features two new finishes: *Leth-R-Grain*, said to resemble split cowhide, and a textured design on Insulation Board Plank known as *Gray-tex* and *Green-tex*. Leth-R-Grain is reported washable and scuff resistant, and comes in 3 by 8 ft and 4 by 8 ft panels in Morocco Red, Antique Brown and Jade Green. Both materials are suggested by the manufacturer for use as wainscoting or overall wall finishes in commercial buildings, cocktail lounges, dens, etc. The Flintkote Co., 30 Rockefeller Plaza, New York 20, N. Y.

WEATHER STRIPS FOR SLIDING DOORS
ACCURATE
In this splendid Kentucky home, "ACCURATE" metal weather stripping for sliding doors was installed in 1944 in accordance with specifications by Mr. James Kellum Smith, of McKim, Mead & White, Architects. Five years of constant use have demonstrated the truly dependable performance of sliding doors fitted with "ACCURATE" weather stripping. Everywhere, more and more architects and owners are looking to "ACCURATE" for real sliding door weather protection. Consultation invited.
ACCURATE METAL WEATHER STRIP CO., Inc.
215 EAST 26th STREET, NEW YORK 10, N. Y.

*Range with separate oven and cooking-top units permits wide choice of arrangement and combination*

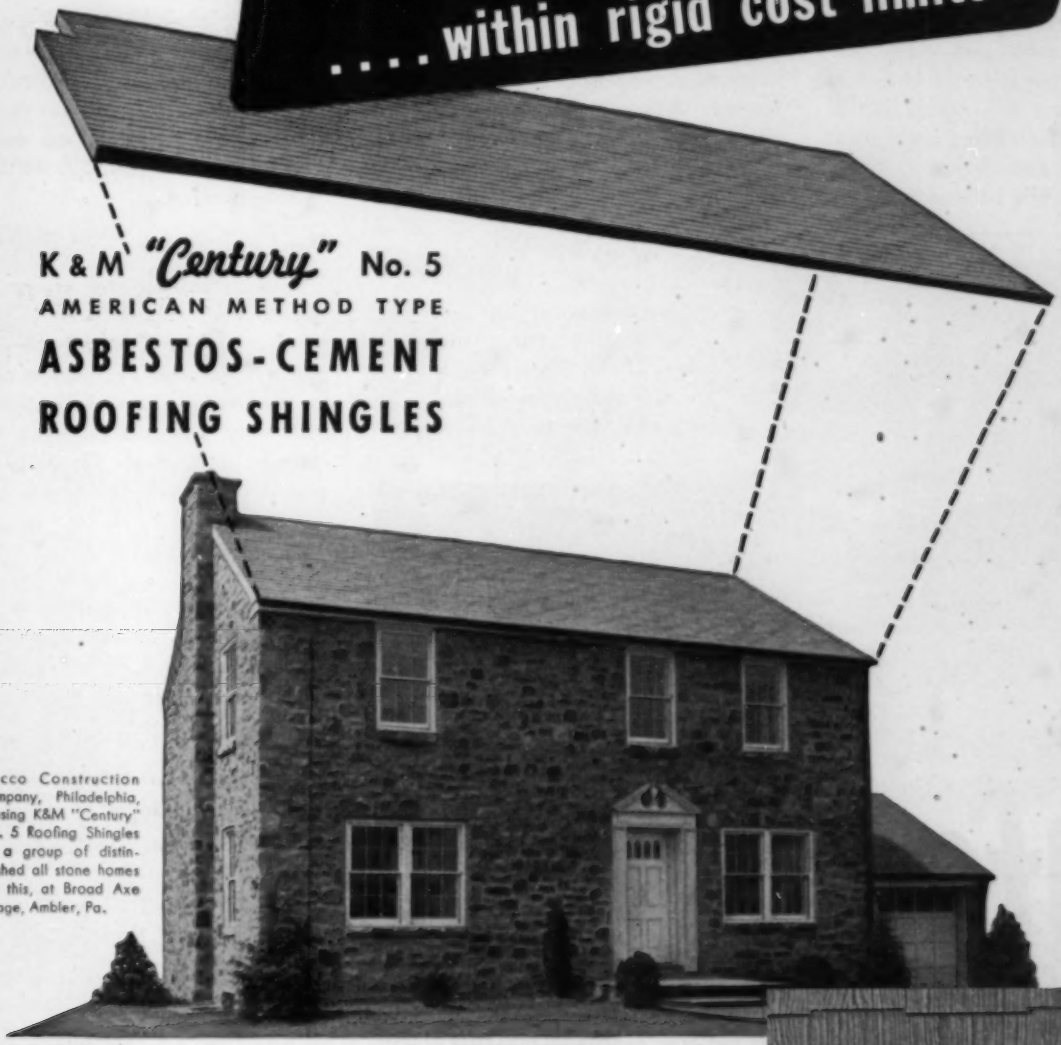
### *Modular Range*

The Universal *Select-A-Range* is a forward step in flexible kitchen planning. It is comprised of three basic interchangeable, independent, self-contained units: an oven with baking and broiler space; a surface cooking unit; and a one-drawer storage cabinet. More than 25 different arrangements can be created from these modular units, giving the owner free choice in working heights, arrangement and cabinet work. Units may be purchased separately, and added to as desired. No venting is said to be required, allowing units to be recessed in counters, cabinets or walls.

The ovens feature one piece enamel-lined interiors, thermostat control, automatic timer, smokeless slotted broiler grid and preheat push button. Surface

(*Continued on page 206*)

# GOOD LOOKS UNLIMITED .... within rigid cost limits



**K & M "Century" No. 5**
**AMERICAN METHOD TYPE**
**ASBESTOS-CEMENT ROOFING SHINGLES**

Mecco Construction Company, Philadelphia, is using K&M "Century" No. 5 Roofing Shingles on a group of distinguished all stone homes like this, at Broad Axe Village, Ambler, Pa.

Each 24" K&M shingle unit (above) lines up for that clean "custom" effect.

Attractiveness, utility and cost are the architect's three-horned dilemma, especially in residential roofing. This presents a challenge that informed architects find themselves happily able to meet today, by employing K&M "Century" Asbestos-Cement Shingles.

The desired richness to enhance any over-all scheme is inherent in the deep cypress graining of K&M Shingles. The mineral pigments —surf green, Spanish red, black, white—are not merely on but *in* these shingles, for enduring beauty.

Architect, builder and owner can all agree on the economics of K&M Shingles. The handy 24" three-course units, rapidly laid with self-alignment, using only two nails per unit, save labor time. No maintenance, because normally there is nothing that weather, rot, or even fire, can do to K&M Asbestos-Cement Shingles.

*Your inquiry for specification and application data will have our prompt attention. Write us.*

*Original manufacturers of Asbestos-Cement Shingles in this country.*

K&M best in asbestos ®

**KEASBEY & MATTISON**
**COMPANY · AMBLER · PENNSYLVANIA**

## PRODUCTS

(*Continued from page 206*)

### *Water Heater*

The *Burkay "180"* water heater is designed to provide sterilizing water for small restaurants and cafes. The heater has an input capacity of 40,000 Btu/hr and stores 4½ gal of 180 F sanitizing water for rinsing operations. Storage tank is self-contained within the heater. Relatively little piping is reported necessary, with water normally supplied by the building's source of warm water. Outer dimensions are: 30 in. high, 16 in. diam. A. O. Smith Corp., 3533 N. 27th, Milwaukee 1, Wis.

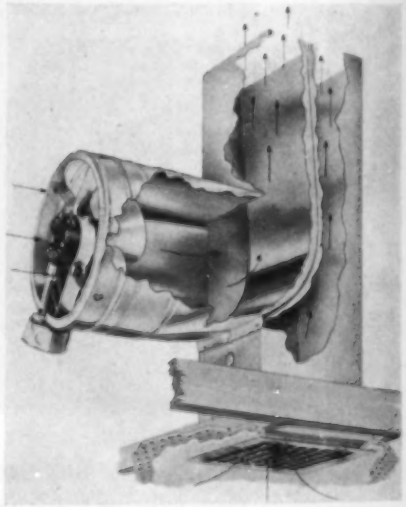
### *Folding Chairs*

A metal folding chair with zipped-on fabric seat and back was introduced recently. Designed by Eva Zeisel, the chair is made in three types: side, lounge and high-back. Frames consist of a continuous, curved steel tube, held open by two easily removed cross bars. The lower part of the frame is identical in all the chairs, while different upper parts are snapped on to form the three types. By removing the cross bars, the chair can be quickly flattened for storage and shipping.

The hammock-like seat of nylon or plied cotton, and the spring action of the tubular frame combine comfort and light weight. The chair was developed for use both indoors and outdoors. Richards-Morgenthau, 225 Fifth Ave., New York, N. Y.

### *Dual Ventilator*

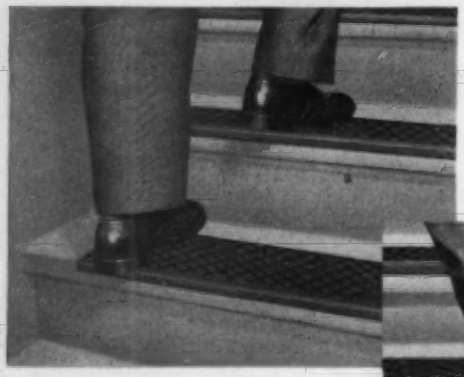
Both kitchen and attic are ventilated, and the stale air exhausted to the outside by a fan unit recently announced. The *Attifan Dual Ventilator* is designed for installation above the kitchen stove with only the grill in view. A duct extends up through the attic and is vented to the outside. Motor and fan

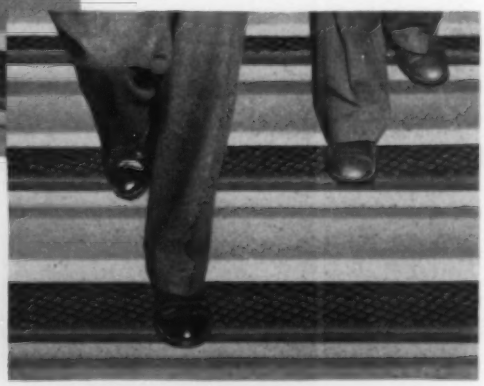


*Fan unit ventilates both kitchen and attic*

are mounted in an adjoining duct opening into the attic, and draw air from kitchen and attic simultaneously. The unit is said to lower room temperatures by 15 to 20 F, as well as withdraw odors, smoke, etc. from the kitchen. Advantages cited include motor replacement away from airborne cooking grease, lack of fire hazard and quiet operation. Product of Kool Air Engineering Co., San Bernardino, Calif., Attifan is nationally distributed by Appliance Products Co., Los Angeles 6, Calif.

(*Continued on page 210*)



Action photos of up and down stair traffic. Note points of foot contact which are also the points of slipping and of wear.

# Safe GOING UP and DOWN

**Feralun* Safety Treads are made to protect *all* "danger spots" from slips and wear**

As the illustrations show, feet hit different parts of a stair tread when walking *up*—and walking *down*. A glance at any worn stairway will show the results of this "up and down" wear.

Feralun treads are made to provide full protection from this "double traffic" all stairways must serve. They always have abrasive granules in the nosings—for the *down* traffic, and should be wide enough (at least 4") to protect the *up* traffic as well.

Not only do these sturdy cast iron abrasive treads give underfoot safety *up* and *down*, but they also give protection from wear as well. Installations of Feralun treads are still giving maintenance-free safety after more than a quarter century of continuous use.

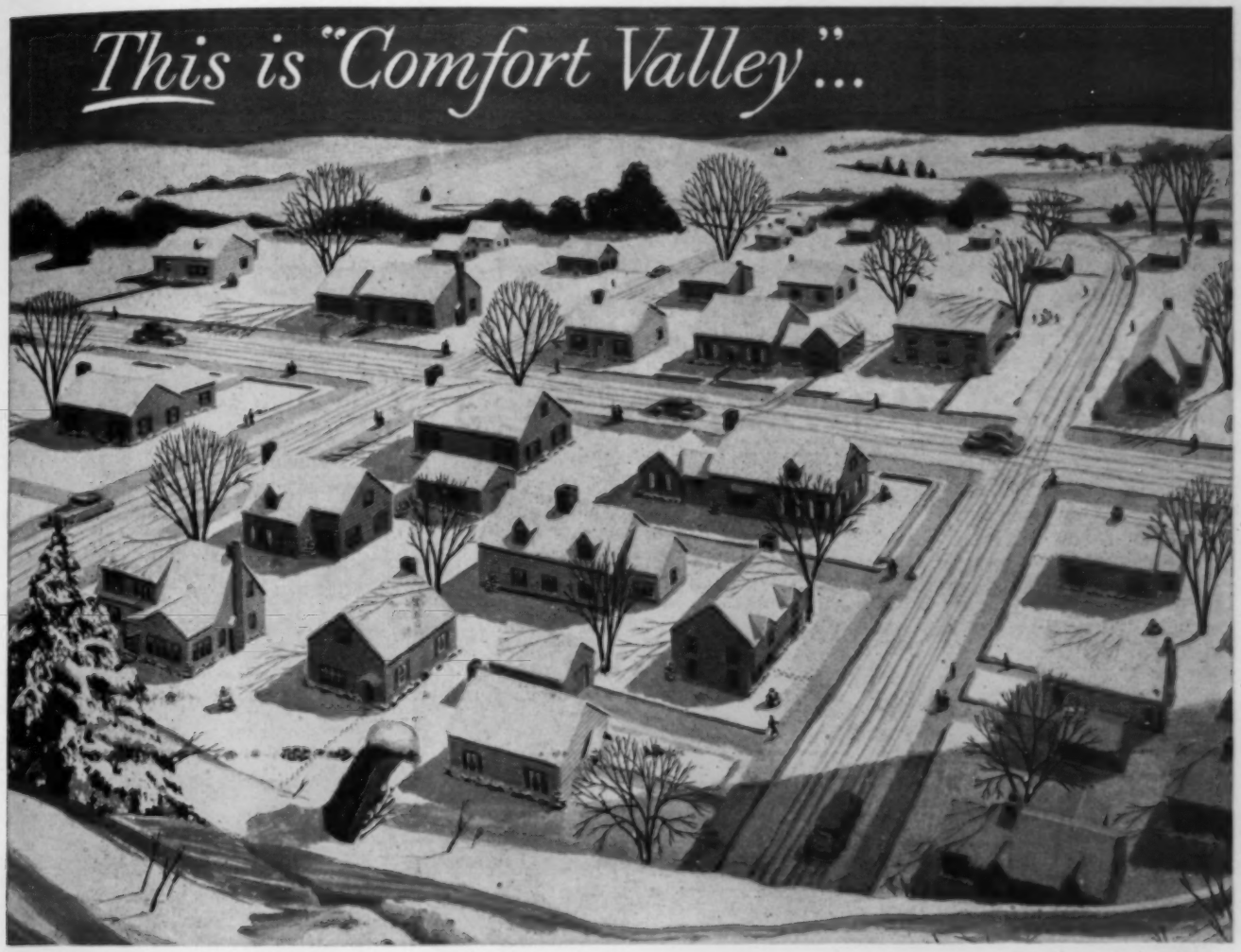
For full information on Feralun and other underfoot safety products, see Sweet's File, Architectural, Sec. 13a/10, or write to:

**AMERICAN ABRASIVE METALS CO.**

463 Coit Street • Irvington, New Jersey

*Reg. U. S. Pat. Off.

USE FERALUN TREADS AND BE SAFE . . . "DOWN AND UP"




## Where Steel Pipe is first choice for Radiant Heating . . .

"In the comfort of a valley, home can seem 'a dream come true'," a poet once said . . . and his words are a perfect description of many a modern American home development. For what can make for more happy living, when the chill winds of winter blow, than the snug warmth of new, radiant heated homes in "Comfort Valleys" everywhere?

Radiant Heating systems in such homes are at their best, of course, when installed with durable, adaptable, economical steel pipe. You see, steel pipe's proved service record in conventional hot water and steam heating systems over more than 60 years would, alone, entitle it to first consideration. But, more than that, the *specific* piping requirements of the popular new Radiant installations are met in *every* particular by steel pipe. It's readily formed, easily welded, imparts structural strength, and importantly, has the same co-efficient of expansion as concrete, plaster and masonry. It's lower in cost, too, and is made to outlast the useful life of the building.

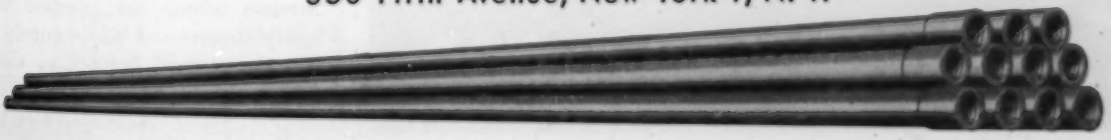
Already, as in conventional heating, more steel pipe is used for Radiant Heating than any other!

*The inherent characteristics of steel pipe are perfectly "matched" to the installation requirements of Radiant Heating.*

**COMMITTEE ON STEEL PIPE RESEARCH**

OF AMERICAN IRON AND STEEL INSTITUTE

350 Fifth Avenue, New York 1, N. Y.



PRODUCTS
(*Continued from page 208*)

### *Decorative Rubber Matting*

A decorative rubber floor matting is being produced in a waffle-like design in black, maroon, red or green. The matting is designed for areas where regular corrugated matting is too light or unattractive, and perforated mats are too heavy for such service. The design is said to be easy to clean, making it useful over carpeting in public places to prevent tracking mud and dirt. Matting is available in 3/16-in. thickness and 36-, 48- and 52-in. widths. United States Rubber Co., 1230 6th Ave., New York 20, N. Y.

### *Air Diffuser for Acoustical Ceilings*

Joined integrally with a square panel of lightweight metal, an adaptation of the *Kno-Draft Adjustable Air Diffuser* has been designed for use with standard acoustical ceiling units. According to the manufacturers, the simple flat design of the diffuser makes it blend unobtrusively with these ceilings. The unit has all the standard features of the Kno-Draft line: adjustability for angle of air discharge, air volume control, etc. W. B. Conner Engineering Corp., 114 E. 32nd St., New York 16, N. Y.

### *Insulation Fasteners*

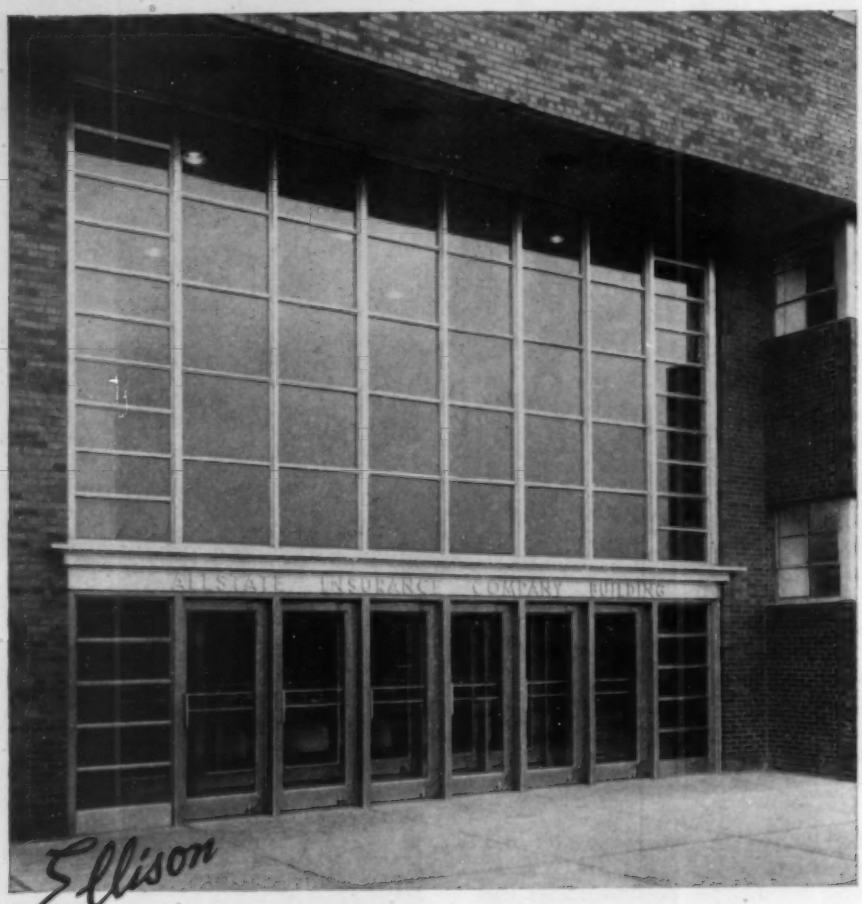
*Speed Clip* has been developed to fasten insulation permanently to sheet metal roofs and walls without adhesives. The fastener, which also can be used to secure insulation to duct work, is driven like a nail through the insulation and into the metal. The clip is said to have a razor-sharp point for penetrating steel .040 to .050 in. thick, and to form a barb which assures a secure, windproof installation. Box flanges and rigidity are reported to prevent the clip being driven too far into the steel. A flat head allows smooth application of finish roofing. The fastener is produced in three sizes. Tinnerman Products, Inc., 2035 Fulton Rd., Cleveland, Ohio.

*Easily installed masonry tie features rounded, safe edges, secure anchorage*

### *Wall Tile For Masonry Veneer*

The Copperweld *V-Lok Tie*, consisting of a v-shaped prong and a nail, is reported to provide a safe, strong and permanent tie for masonry wall veneers. The tie has a steel core, and is copper coated by a special process. It is said to be rust and corrosion proof. In use, the tie is nailed to the studding, and bent to the angle required to anchor masonry facing. The wide-spread, crimped prongs are claimed to resist tensile stresses and hold securely in mortar. Copperweld Steel Co., Glassport, Pa.

(*Continued on page 212*)



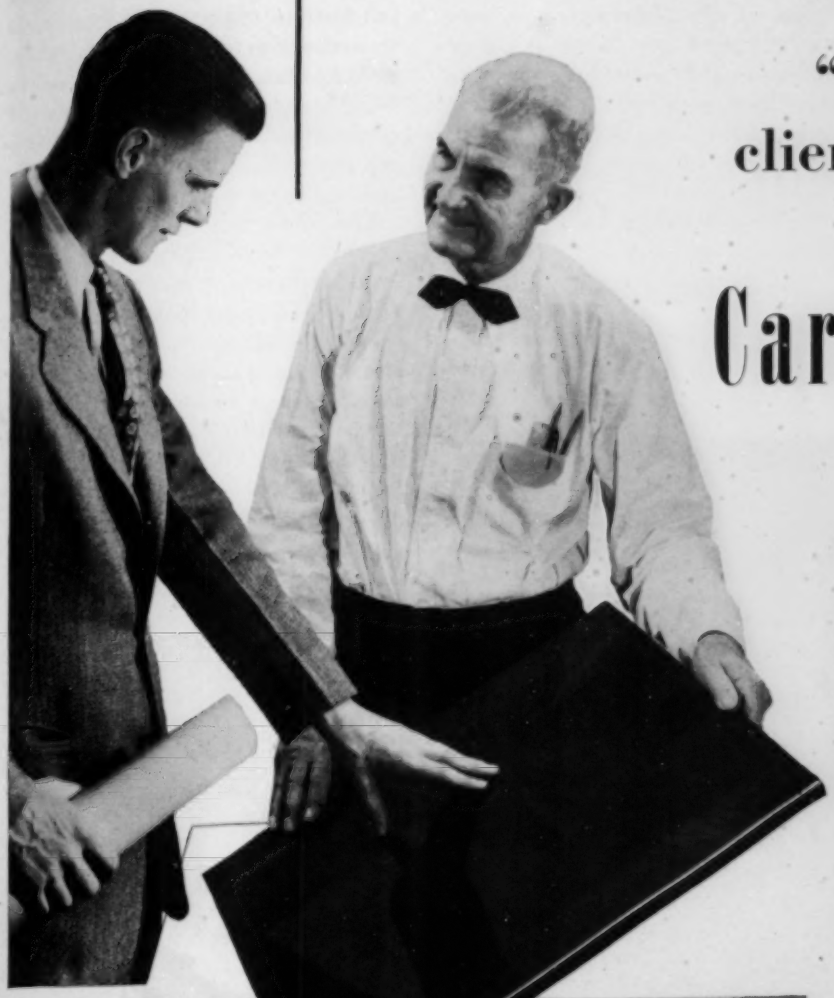

Ellison

the Balanced Door in THE ALLSTATE BUILDING, Chicago, Ill.
architects Carr & Wright, Inc., Chicago, Ill.

The Door that lets
TRAFFIC through QUICKLY

Ellison
the BALANCED DOOR

ELLISON BRONZE CO.
Jamestown, New York
representatives in 71 principal cities



# "I've found client satisfaction in Carrara Glass"

THAT'S been the experience of architects all over the country. And there are cogent reasons why this is so: Carrara Structural Glass is a *quality* product, finely machined. It's flawless, with a closely-knit structure. It produces true, even joints. There is no lippage. It is free from warpage. Carrara Glass is a permanent material. It will not check, craze, fade or stain. It's impervious to moisture, weather, chemicals, grease and pencil marks. Adaptable to almost any design, it can be decorated by sand-blasting, fluting, shading or painting for ornamental purposes. Its beauty and the many possible color combinations offer the creative designer infinite opportunities for original effects.

Here, indeed, is a versatile, dependable medium, highly acceptable to your clients. The result of extensive Pittsburgh research, which is dedicated to solving architectural problems by supplying materials which will produce better jobs, it is worthy of consideration in all your plans.

Architect: Allward & Gouinlock, Toronto, Canada

Carrara — *the quality structural glass*

PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS

PITTSBURGH PLATE GLASS COMPANY

PRODUCTS
(Continued from page 210)

### *Truss Doors*

*Kennebec Truss Doors*, of the hollow core, flush type, incorporate four wires or trusses to prevent warping. The wires are adjusted at the factory, with simple hollow screw fittings and metal plates to hold them in alignment, and are said to need no further attention. An additional feature is that, by an adjustment with a screwdriver, any door may be warped to conform to a door frame that is itself out of line. The doors are surfaced with birch veneered plywood, and are claimed to resist warping even under extremely adverse conditions of heat, moisture and rough use. Truss Door Div., Kennebec Inc , Bingham, Maine.

### *Plastic Shades*

New window shades, made of a Vinylite plastic film, are said to combine toughness and durability with a smooth and lustrous finish. These *Plastishades* are available in four colors, ivory, white, green and tan. Stock shades are made in 36-, 42- and 48-in. widths and 6- and 7-ft lengths. Made to measure shades are produced in widths up to 48-in. and lengths up to 9-ft.

The plastic material is reported unaffected by moisture, mildew or insects, to be tear resistant, and not to support flame. The Vinylite is also said to be resistant to fading, cracking, shrinking and staining, does not ravel and has no filling to break or fall out. Price is reported lower than cloth shades. Charles W. Breneman Co., 2045 Reading Rd., Cincinnati, Ohio.

"When I'm designing a floor that must combine luxury looks and lifetime wear with moderate cost, I turn to Amtico . . ."
SAYS
GEORGE NELSON
Noted Architect and Designer
Comparing favorably with other resilient floorings in cost, any slight added investment in AMTICO is soon absorbed by the way it cuts maintenance costs, and its unmatched durability. Unusual design flexibility with 22 stock colors, real rubber comfort, fire-resistance and sound-deadening qualities are other good reasons for AMTICO'S popularity with some of America's foremost architects and designers.
SAMPLES ON REQUEST
A free box of 4" x 4" samples of Amtico in standard 1/8" gauge and all 22 colors sent, with illustrated literature, on request. Write Dept. AR-2.
Amtico
RUBBER FLOORING
AMERICAN TILE & RUBBER COMPANY, TRENTON 2, N. J.
In Canada—American Tile & Rubber Co., Ltd., Sherbrooke, Quebec

Compact air register used with thin ducts

### *Floor-Type Register*

A floor type register has been designed for use with the G-E *Air Wall* heating system, which reportedly requires a floor opening only 1 15/16 in. wide. No cutting or alteration of walls is said required, simplifying installation in new or old, masonry or frame construction. It is particularly recommended for buildings with walls of less than conventional thickness. The compact, complete assembly includes the die-cast aluminum register, which is installed vertically, and a sheet-metal stackhead and boot. The registers direct forced warm air upward in a fanlike pattern, in front of cold outer walls or windows. It is claimed that by also warming the walls they provide additional, radiant heat. Automatic Heating Div., General Electric Co., 5 Lawrence, Bloomfield, N. J.

(Continued on page 214)

# *They're moving plenty of furniture*

## in Tacoma since relighting with Litecontrol

. . . And no wonder, with their merchandise displayed in so well-lighted an area. Note the evenness of the illumination . . . the absence of harsh shadows . . . the ease of seeing . . . all of which make a good lighting installation.

Proper optical relationship of lamps to the Holophane CONTROLENSES* ensures this correct light distribution. The No. 9124 fixture can be used, as in this Tacoma store, with incandescent lens boxes for accent lighting . . . in runs of any length . . . or in rectangles, angles, or crosses. And its smooth, graceful lines and shallow recess depth are advantages to consider for any modern architectural design.

Other features are the flexibility of mounting, easy cleaning, easy relamping. Available in two or three lamp models and with 75 watt slimline lamps. **Write** today for information and assistance in solving your lighting problems.

Installation: Rhodes Brothers, Tacoma, Wash.
Architects: Mock & Morrison, Tacoma
Electrical Engineers: Beverly A. Travis & Associates, Seattle
Electrical Contractors: The Electric Construction Co., Tacoma
Distributor: Westinghouse Electric Supply Corp., Tacoma
Lighting Equipment: 2 Litecontrol No. 9124 curved-lens fixtures in combination with 1 incandescent lens box per run
Lamps per fixture: No. 9124 fixture — 2-40 watt fluorescent, lens box — 1-300 watt incandescent
Watts per fixture: No. 9124 — 100 watts, incandescent — 300 watts
Area Lighted: 74 feet by 120 feet
Footcandles: 50 in service (average)

***Write for New Booklet!***

**Contains:** Pictorial Index for easy, quick reference. Complete descriptions and specifications on all Litecontrol fixtures, including utilization factors, formulae and all data necessary to figure an installation from start to finish.

**LITECONTROL CORPORATION**
36 Pleasant Street, Watertown 72, Massachusetts

Please send me a copy of your new booklet.

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**LITECONTROL**
*Fixtures*

KEEP UPKEEP DOWN

DESIGNERS, ENGINEERS AND MANUFACTURERS OF FLUORESCENT LIGHTING EQUIPMENT DISTRIBUTED ONLY THROUGH ACCREDITED WHOLESALERS

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- For faithful reproduction of your designs
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Ornamental Iron
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Be assured of the finest, most exacting hand wrought ornamental iron custom work. Artcraft also produces a complete line of stock items: Stoop railings, porch columns, hand rails, mail box standards, screen door grilles and chimney initials.

Send in your specifications direct for custom work, order stock items from our catalog. Two weeks delivery on custom work, immediate delivery on stock items. All work fully GUARANTEED. We ship to all points in U.S. and Canada.

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New A.I.A. File No. 14 and 15 folder on stock and custom work is just off the press. Also our new 40 page catalog "ART IN IRON" is free on request. Write today for your copies.

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ORNAMENTAL IRON CO.
724 E. Hudson St., Columbus 11, Ohio

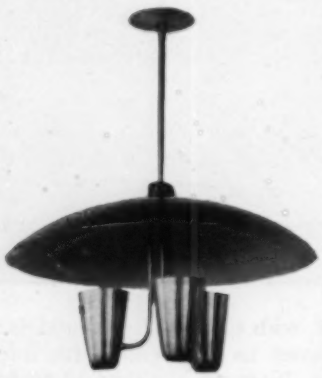

## Architectural Engineering

PRODUCTS
(*Continued from page 212*)

### *Steel Sliding Doors*

A new welded steel sliding closet door, the *Spacemaker*, consists of two flush type steel doors operated on ball bearing rollers within a steel door frame. The unit is shipped complete, ready for installation. Doors may be purchased separately for use in wood frame openings.

The product is finished in a prime coat of baked-on paint. The units are claimed to eliminate cracks, warping and sticking. The Steelcraft Mfg. Co., 9017 Blue Ash Road, Rossmoyne, Ohio.



*Ceiling fixture gives soft, diffused light*

### *Lighting Fixture*

A contemporary ceiling fixture (catalog series 290–3) designed by Harry Gitlin, is said to give soft, glareless, widely diffused illumination. The light source, concealed in cups, throws light up into dome which redirects light to the floor. The fixtures are available in 24-, 30- and 36-in. diameters in a brushed brass finish. Other finishes can be supplied if specified. Ledlin Lighting, Inc., 49 Elizabeth St., New York 13, N. Y.

### *New Furniture Line Announced*

The JG Furniture Co., Inc., producers of durable furniture for use in public

(*Continued on page 216*)


NEW SERIES 500
RITE-LOCK
FOR SLIDING DOORS

Here is the most versatile lock for every sliding door application. It is adaptable to any requirement as to hand, security and finish . . . while the three standard sizes adjust to fit any door thickness, 1⅛" to 2".

The thumb button, emergency or blank discs or cylinder can be interchanged from side to side on the job. This means that dealers can supply any combination required by merely stocking a few representative discs and cylinders in popular finishes.

Rite-Lock is easily installed by a simple cut-out without any mortising. The escutcheon measures 4½" x 2⅞". All exterior parts solid brass. Write us on your letterhead for the new Adams-Rite Catalog 49.

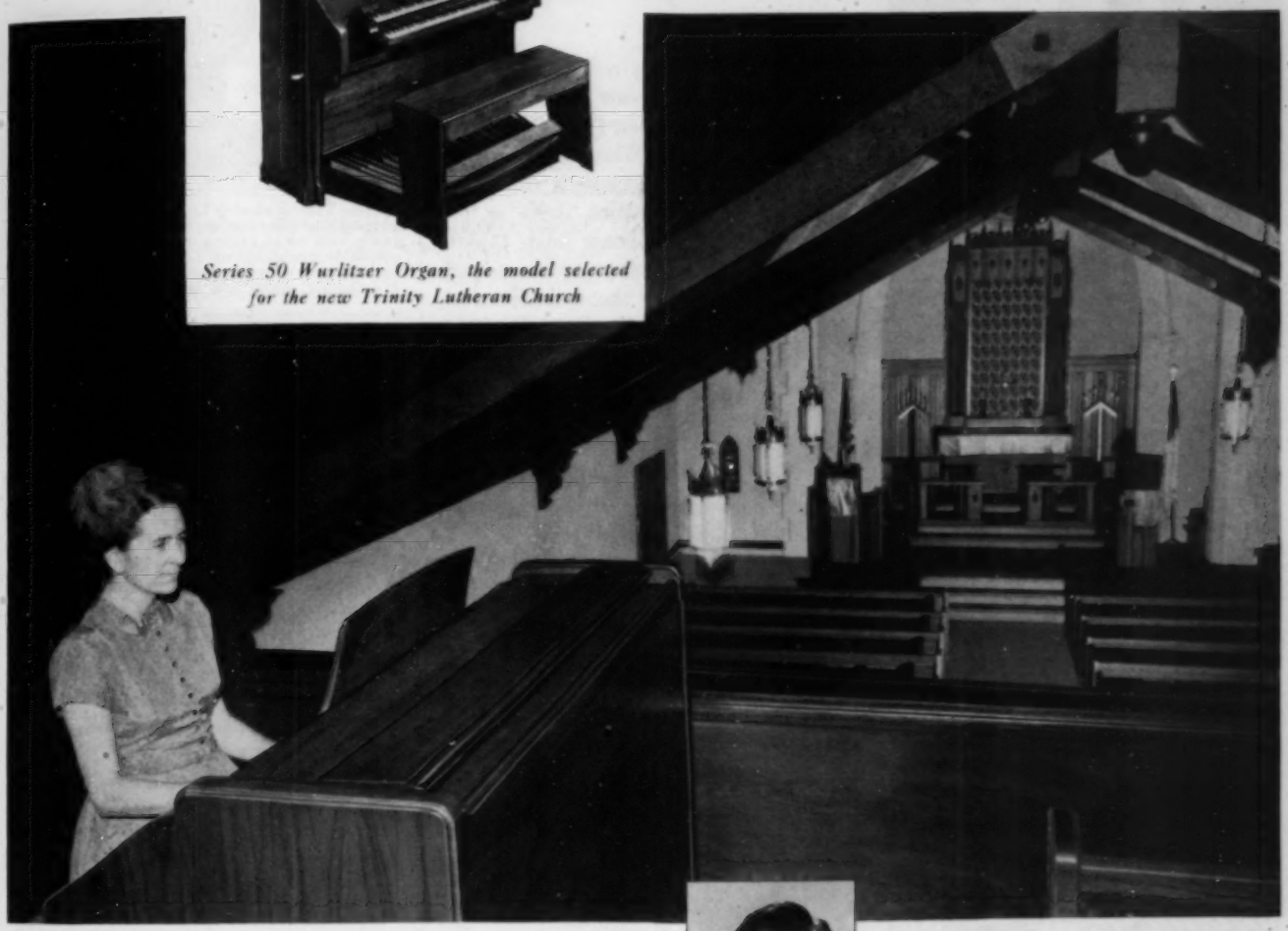
CYLINDER DEADLOCK FOR SLIDING DOORS

This cylinder deadlock operates by cylinder from one or both sides. Fits all standard cylinders with adapter cams furnished (specify when using Yale or Sargent cylinder). Solid bronze face, strike and bolt. Heat treated aluminum alloy case. Use your own cylinders and trim. Also used as jimmy-proof lock.

QUALITY HARDWARE FOR NEARLY HALF A CENTURY
ADAMS-RITE MANUFACTURING CO.
540 WEST CHEVY CHASE DRIVE, GLENDALE 4, CALIFORNIA, U. S. A.

# Wurlitzer Organ saves space, reduces cost, permits better design

*Series 50 Wurlitzer Organ, the model selected for the new Trinity Lutheran Church*



New Trinity Lutheran Church, Easthampton, Mass.
Architect: Arland A. Dirlam

Speaking of the organ installation in the beautiful new church pictured here, Mr. Arland A. Dirlam, architect, says, "Organs such as the Wurlitzer allow greater flexibility in church design . . . do not require large areas for blower units and organ chambers, and are comparatively low in cost. Consequently, space and funds saved can be diverted to many other useful purposes."

Equally important, the Wurlitzer Electronic Organ completely satisfies the church congregation. "The entire congregation is greatly pleased with our choice of a Wurlitzer," says Mrs. Worth O. Walker, organist. "It is especially satisfying to me because of its traditional church organ tone and its conventional arrangement of stops and playing technique."

Wurlitzer makes a *complete* line of electronic organs, both single-manual and double-manual types—models for *every* type of installation. Write for complete information.

THE RUDOLPH WURLITZER COMPANY, NORTH TONAWANDA, NEW YORK

WURLITZER

World's Largest Builder of Organs and Pianos Under One Name

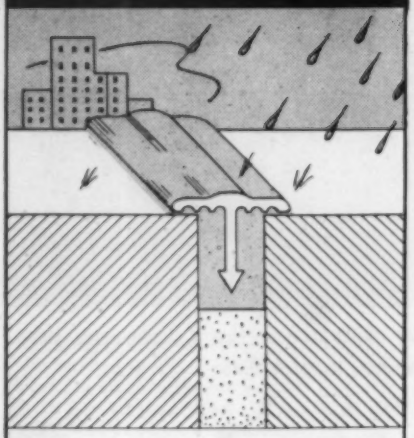
# TO STOP LEAKS BEFORE THEY START-

Specify

TRADE MINWAX MARK

## WEATHERCAP

for masonry joints!



• Seals joints in copings, cornices, wash and belt courses, once and for all! For sample and specification data, mail coupon.

**SEND FOR YOUR SAMPLE**

**Minwax Company, Inc.**
**11 West 42nd St., New York 18, N.Y.**

Please send me free sample of Weathercap with descriptive folder and specification data.

Name .....

Address .....

City .....

State .....

AR-3-50


## Architectural Engineering

PRODUCTS
(*Continued from page 214*)

places, announces a new line of contemporary living room furniture. Designed by Ray Komai, Paolo A. Chessa of Milan, Carter Winter and Irving Sabo, the line will include a variety of chairs and other seating units, a few elemental storage boxes and tables. They will be available to architects and decorators through the manufacturer. JG Furniture Co., Inc., 317 E. 32nd St., New York, N. Y.

### *Heating Flow-Control*

The *Thrush Flow Control Valve* is combined with an air vent tube for use on automatically-fired forced hot water heating systems. The purpose of the valve is to vent air as it accumulates in top of boiler and pass it directly into pressure tank. Water for heating system is taken from boiler, below outlet opening and free of air.

The combination valve is claimed to insure positive air elimination from the boiler, and put it in pressure tank where it can serve a useful purpose. Frequent venting of radiators, etc., is said to be unnecessary when the unit is employed. H. A. Thrush & Co., Peru, Ind.

### *Shock Proof Outlets*

*No-Shok Safety Duplex Receptacles* are designed with a built-in rotary cap which automatically closes the outlet when not in use. A quarter turn of the cap with plug allows prongs to enter. When plug is pulled out, cap automatically swings shut.

The dual outlet is said to be sturdily constructed, with bronze contacts, lifetime spring action and double walls of bakelite insulating heavy duty terminals. All parts are rustproofed. Bell Electric Co., 1844 W. 21st St., Chicago 8, Ill.

### *Radiator Valve*

*Heat-Timer*, a thermostatic radiator valve, is designed to permit individual room heating control. The valve is reported to be easily inserted on any ordinary radiator of a one-pipe steam system, in place of the air valve. The dial is set to any temperature desired,

(*Continued on page 218*)


**NEW LIGHTS by Cannon Electric**

TYPE DMP-1

Marine-Type Pedestal Light, similar to the top of the Pathfinder (shown below), may be used on posts, side walls, ceiling, etc. Plastic lens in various color combinations. Low voltage or 115V. Cap and base are aluminum alloy or zinc. Mounts on 4" octagonal outlet box, with round plaster ring.

PATHFINDER TYPE 16264-11

Growing in popularity for driveways, pathways, steps, gardens or grounds for permanent installation in low voltage or 115V. Colored prism lens combinations make special uses possible. Adjustable. Riser pipe extra.

New QT7 type has two filament type lamps for quick starting. Other wording such as "DO NOT ENTER", etc. may be substituted. Prism end lens in red or other color, as desired.

Write for new C-48 Condensed General Catalog for a review of Cannon Electric products and prices; Bulletin PL-2 and Q-2 for the above lights.

Address Cannon Electric Development Company, Division of Cannon Manufacturing Corporation, 3209 Humboldt St., Los Angeles 31, Calif. Canadian offices and plant: Toronto, Ontario. World Export: Frazar & Hansen, San Francisco.

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